APPENDIX A

DEPARTMENT1OF THE ARMY
SAVANNAH DISTRICT, CORPS OF ENGINEERS
P.O. BOX 889
SAVANNAH, GEORGIA 31402-0889

REPLY TO
ATTENTION OF:

April 30, 2004

Planning Division

JOINT PUBLIC NOTICE
Savannah District, Corps of Engineers
and the
Georgia Department of Natural Resources

SUBJECT: 1: Notice of Availability of a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) for Brunswick Harbor Deepening Project, Glynn County, GA – Proposed Modification of the Wetland Mitigation Plan to Include Deposition of Dredged Material from the Jekyll Creek Mitigation Site in the Brunswick Harbor Ocean Dredged Material Disposal Area (ODMDS)

2: Notice of a Finding of Suitability of Material Dredged from the Jekyll Creek Portion of the Atlantic Intracoastal Waterway (AIWW) for Transport and Disposal in the Brunswick Harbor ODMDS

TO WHOM IT MAY CONCERN:

Notice of the following is hereby given:

a. Pursuant to the National Environmental Policy Act of 1969, Sections 401 and 404 of the Clean Water Act (33 USC 1344), and Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972, notice is hereby given that the Savannah District, US Army Corps of Engineers, proposes to modify the Brunswick Harbor Deepening Project Wetland Mitigation Plan to allow construction of temporary barge access at the Jekyll Island site and to allow placement of excavated sediment in the Brunswick Harbor ODMDS.

b. Pursuant to Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972, the District has prepared an evaluation (included as Appendix D to the draft EA) that both the deepening project mitigation site materials and materials dredged from the Jekyll Creek portion of the AIWW are suitable for disposal in the Brunswick Harbor ODMDS. These are two separate findings, one associated with the AIWW navigation project and one associated with the Brunswick Harbor Deepening Project. However, they are related because of the similar origin of sediments from the mitigation site and the Jekyll Creek AIWW channel.

c. The Savannah District announces the public availability of a Draft Environmental Assessment (EA) and Draft Finding of No Significant Impact (FONSI) concerning the action involving the Brunswick Harbor Deepening Project. It also announces that the Section 103 evaluation for the

Jekyll Creek portion of the AIWW is included in Appendix D of the Draft EA and open for comments. Separate comments on this evaluation are solicited. Copies of the Draft EA and FONSI can be obtained either by writing the Savannah District at the following address: US Army Corps of Engineers, Planning Division, Environmental Resources Branch, ATTN: Mr. Steve Calver, PO Box 889, 100 West Oglethorpe Avenue, Savannah, Georgia 31402, by calling Mr. Calver at (912) 652-5797, or by writing him at the following email address: james.s.calver@sas02.usace.army.mil.

d. Any person who has an interest which may be affected by this proposed action may request a public hearing. The request must be submitted in writing to the District Engineer, within the comment period of this notice, and must clearly set forth the interest which may be affected and the manner in which the interest may be affected by this action.

e. Written statements regarding the Draft EA and FONSI for the proposed Brunswick Harbor Deepening modification and the Section 103 Evaluation of suitability of Jekyll Creek channel sediments for transport and disposal in the Brunswick ODMDS will be received at the Savannah District Office until

12 O'CLOCK NOON, MAY 31, 2004

from those interested in the activity and whose interests may be affected by the proposed action.

PROJECT DESCRIPTION – Brunswick Harbor Deepening:

The wetland mitigation plan calls for restoration of 59.4 acres of salt marsh on Jekyll Island previously impacted by dredged material discharged on the site. Restoration entails removal of dredged material from the site. The original mitigation plan, as described in the Final Environmental Impact Statement (FEIS) for the Brunswick Harbor Deepening Project, called for placement of material excavated from the site on an adjacent high ground area. This plan was modified by EA in February 2002, to allow placement of excavated materials on Andrews Island or other approved high ground area. It is now apparent that water access to the site is necessary to allow excavated sediment to be carried by water to Andrews Island. Two alternative means of access are proposed: 1) build a temporary barge access canal into the site from Jekyll Creek or 2) build a temporary dock facility with minor excavation at the dock face to allow a barge or similar craft to tie up and receive sediments to be transported to a disposal facility. In addition, as an alternative to disposal in the Andrews Island dredged material disposal facility, it is proposed that materials from the mitigation site and Jekyll Creek be transported and discharged in the Brunswick Harbor Ocean Dredged Material Disposal Area (ODMDS). The alternatives being considered are described below.

Alternative A. No Action.

Alternative B. Construct Temporary Barge/Dredge Access Canal. A 14-foot deep barge access canal 60 feet wide, 1,350 feet long, and requiring 90,000 cubic yards of excavation would be constructed at the site. Approximately 900 feet of the canal would be constructed into high ground and marsh and the other 450 feet would be deepening in Jekyll Creek. It is expected that transport of

excavated material would be to Andrews Island or the Brunswick ODMDS (if approved). After transport of excavated material off site is finished, the canal would be filled out to the edge of the bank to the elevation of adjacent sediment. This will result in replacement of the berm along the bank of Jekyll Creek to original elevations.

Alternative C. Construct Temporary Docking Facility. A temporary docking facility to include pilings, fixed and floating dock, and dolphins would be constructed in Jekyll Creek adjacent to the site to allow mooring of barges and similar vessels for transport excavated material from the site. Transport of material is expected to be to Andrews Island or the Brunswick ODMDS (if approved). Some minor excavation at the dock face would be required for adequate clearance of moored vessels. Two potential dock configurations are envisioned. (1) About a 20-ft. wide dock approximately 350 feet long may be constructed parallel to the bank. This would require excavation to –12 ft. MLLW of about 17,000 cubic yards of sediment up to 90 feet in front of the dock face and 9,000 cubic yards of sediment for a 60 ft. wide passageway to the toe of the AIWW channel (a total of 26,000 cubic yards of sediment). (2) About a 20-ft. wide dock approximately 350 feet long may be constructed perpendicular to the bank. This could require excavation of about 12,000 cubic yards of sediment to construct a 40-ft. wide area of deep water (–12 feet MLW) on either side of the dock leading to a 60-ft. wide passageway to the toe of the AIWW channel. No structure would be placed closer than 90 feet to the toe of the AIWW channel. All structures would be removed in their entirety once construction of the project is completed. Excavated sediments may be stockpiled within the mitigation site prior to transport for disposal.

Alternative D. Transport Excavated Materials to the Brunswick Harbor ODMDS. Materials excavated from the mitigation site (330,000 cubic yards), and the barge canal (90,000 cubic yards) or temporary docking facility (12,000 to 26,000 cubic yards) would be transported to the Brunswick Harbor ODMDS. The transport and disposal of excavated sediment in the Brunswick Harbor ODMDS requires US Environmental Protection Agency (EPA) concurrence in the District's Section 103 Evaluation. This evaluation is included as an appendix to this EA. That Section 103 Evaluation also includes a proposal to transport dredged material from the Jekyll Creek portion of the Atlantic Intracoastal Waterway (AIWW) to the Brunswick Harbor ODMDS.

Alternative E. A combination of Alternatives B, C, and D (Tentatively Selected Alternative). It is recommended that Alternatives B, C, and D, be included as additional approved methods of construction of the Wetland Mitigation Plan. Providing these additional alternatives to a potential contractor (in addition to trucking materials to Andrews Island) should ensure that the mitigation plan is constructed in the least costly environmentally acceptable manner.

PROJECT DESCRIPTION – Jekyll Creek portion of the AIWW. Because disposal of sediments dredged from the Jekyll Creek portion of the AIWW has become problematic, the District has evaluated the suitability of materials dredged from the Jekyll Creek portion of the AIWW for transport and disposal in the Brunswick Harbor ODMDS. This evaluation is included in Appendix D of the Draft EA. This is a separate action from the proposed modification of the Brunswick Harbor Deepening Mitigation Plan, and separate comments on this evaluation are solicited.

AUTHORIZATION REQUIRED FROM THE STATE OF GEORGIA CONCERNING MODIFICATION OF THE BRUNSWICK HARBOR DEEPENING WETLAND MITIGATION PLAN:

Water Quality Certification: The Georgia Department of Natural Resources, Environmental Protection Division, intends to certify this project at the end of 30 days in accordance with the provisions of Section 401 of the Clean Water Act, which is required to conduct an activity in, on, or adjacent to the waters of the State of Georgia. Copies of the proposal and supporting documents will be available for review and copying at the office of the Georgia Department of Natural Resources, Environmental Protection Division, Water Protection Branch, 4220 International Parkway, Suite 101, Atlanta, Georgia 30354, during regular office hours. A copying machine is available for public use at a charge of 25 cents per page. Any person who desires to comment, object, or request a public hearing relative to State Water Quality Certification must do so within 30 days of he State's receipt of application in writing and state the reasons or basis of objects or request for a hearing. The proposal can also be seen in the Savannah District U.S. Army Corps of Engineers, Planning Division, 100 West Oglethorpe Avenue, Savannah, Georgia.

Coastal Zone Consistency: Savannah District has evaluated the proposed project and believes it is consistent with the Georgia Coastal Zone Management Program to the maximum extent practicable. The District will submit its evaluation to the Georgia Department of Natural Resources, Coastal Resources Division in Brunswick, Georgia, who administers that program. The State will review the proposed action and determine whether it concurs that the proposed project is consistent with the State's Coastal Zone Management Program. Any person who desires to comment or object to Georgia Coastal Zone Management Consistency Certification must do so in writing within 30 days of the date of this notice to the Federal Consistency Coordinator, Ecological Services Section, Georgia Department of Natural Resources, Coastal Resources Division, Suite 300, One Conservation Way, Brunswick, Georgia 31520-8687 (telephone 912-264-7218) and state the reasons or basis for the objections.

DEPARTMENT OF THE ARMY EVALUATION:

Environmental Assessment of the Proposed Modification to the Wetland Mitigation Plan: Savannah District has prepared a Draft Environmental Assessment and a finding has been made that an Environmental Impact Statement (EIS) will not be required for this action. The Draft EA is being coordinated concurrently with this Notice to Federal and State natural resource agencies for review and comment.

Threatened and Endangered Species Impacts Concerning the Proposed Modification to the Wetland Mitigation Plan: The District reviewed the most recent information and determined that the proposed action will not have any additional effects on any federally listed endangered or threatened species or result in the destruction or adverse modification of designated critical habitat of such species beyond potential effects already considered for the project. Conditions already in place

for the Deepening Project would apply to this proposed medication. For example, to ensure no affect on manatees, the "Standard Manatee Conditions" provided to the District in 1992 by the USFWS would be made a part of any contract for this work.

Cultural Resources Impacts Concerning the Proposed Modification to the Wetland Mitigation Plan: Savannah District plans to conduct a cultural resource survey at the site. The results of the survey will be coordinated with the Georgia State Historic Preservation Officer. The project will be designed and constructed in compliance with the National Historic Preservation Act.

Essential Fish Habitat Impacts Concerning the Proposed Modification to the Wetland Mitigation Plan: Savannah District evaluated the proposal's potential effects on Essential Fish Habitat (EFH). The District believes the proposed work will have no more than minimal adverse impact on essential fish habitat. No additional (EFH) evaluation is proposed. This determination is being coordinated with the National Marine Fisheries Service.

Coastal Zone Consistency Concerning the Proposed Modification to the Wetland Mitigation Plan: Savannah District evaluated compliance of the proposed action with the Georgia Coastal Management Programs (CMP). The District prepared a Consistency Determination, which determined that the proposed action is consistent with the GA CMP to the maximum extent practicable. That determination is being coordinated with the administrator of the Georgia CMP.

Public Interest Review Impacts Concerning the Proposed Modification to the Wetland Mitigation Plan: The decision whether to proceed with the action as proposed will be based on an evaluation of the probable impact, including cumulative impacts of the proposed activity on the public interest. That decision will reflect the national concern for both the protection and use of important resources. The benefits which reasonably may be expected to accrue from the proposal will be balanced against its reasonably foreseeable detriments. All factors that may be relevant to the proposal will be considered, including the cumulative effects thereof. Among these are conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plain values, land use, navigation, shoreline erosion/accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, consideration of property ownership, environmental justice, and, in general, the needs and welfare of the people.

Consideration of Public Comments Concerning the Proposed Modification to the Wetland Mitigation Plan: The US Army Corps of Engineers is soliciting comments from the public; federal, state, and local agencies and officials; Native American Tribes; and other interested parties in order to consider and evaluate the impacts of the proposed activity. Any comments received will be considered by the US Army Corps of Engineers in its deliberations on this action. To make this decision, comments are used to assess impacts to endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of the Environmental Assessment pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

Application of the Section 404(b)(1) Guidelines Concerning the Proposed Modification to the Wetland Mitigation Plan: The Brunswick Harbor Deepening FEIS included a Section 404(b)(1) evaluation that addressed the wetland mitigation plan. The proposed modification involves potential additional temporary placement of fill within the mitigation site primarily from excavation of a barge canal. Most of this material will be placed back in the barge canal to restore the bank to previous contours. Both of these activities involve additional discharges of dredged of fill material into the waters of the United States not considered in the FEIS. The District has conducted an evaluation in accordance with Section 404(b)(1) of the Clean Water Act and determined that the proposed discharge complies with the Section 404(b)(1) Guidelines. That evaluation is included as an appendix to the draft EA for the proposed modification.

Public Hearing Concerning the Proposed Modification to the Wetland Mitigation Plan: Any person may request, in writing, within the comment period specified in this Notice, that a public hearing be held to consider this proposed project. Requests for a public hearing shall state, with particularity, the reasons for requesting the public hearing, the interest that may be affected, and the manner in which the interest may be affected by this action. The decision whether to hold a public hearing is at the discretion of the District Engineer, or his designated appointee, based on the need for additional substantial information necessary in evaluating the proposed project.

Section 103 Evaluation. The proposed transportation of dredged material for the purpose of disposal in the Brunswick ODMDS has been evaluated in accordance with the criteria set forth at 40 CFR 227 and found to comply with the criteria. A Section 103 Evaluation with this determination is being coordinated with the EPA.

Comment Period: Anyone wishing to comment to the Corps on the proposed modification of the wetland mitigation plan or the evaluation of suitability of the Jekyll Creek channel sediment for transport and disposal in the Brunswick ODMDS should submit comments no later than the end of the comment period shown in this notice, in writing, to the District Engineer, US Army Corps of Engineers, Savannah District, ATTN: Mr. Steve Calver, PO Box 889, 100 West Oglethorpe Avenue, Savannah, Georgia 31402-0889, or by e-mailing the comments to the following address: james.s.calver@sas02.usace.army.mil.

Any person who desires to comment or object to Georgia Coastal Zone Management Consistency Certification of the proposed modification to the wetland mitigation plan must do so in writing to the Georgia Department of Natural Resources, Coastal Resources Division, Suite 300, One Conservation Way, Brunswick, Georgia 31520-8687.

Any person who desires to comment or object to State Water Quality Certification of the proposed modification to the mitigation plan must do so in writing to the Georgia Department of Natural Resources, Environmental Protection Division, Water Protection Branch, 4220 International Parkway, Suite 101, Atlanta, Georgia 30354.

Point of Contact: If there are any questions concerning this Public Notice, please contact Mr. Steve Calver, Environmental Resources Branch, Planning Division, at (912) 652-5797.

Carol L. Bernstein
Chief, Planning Division

Enclosures

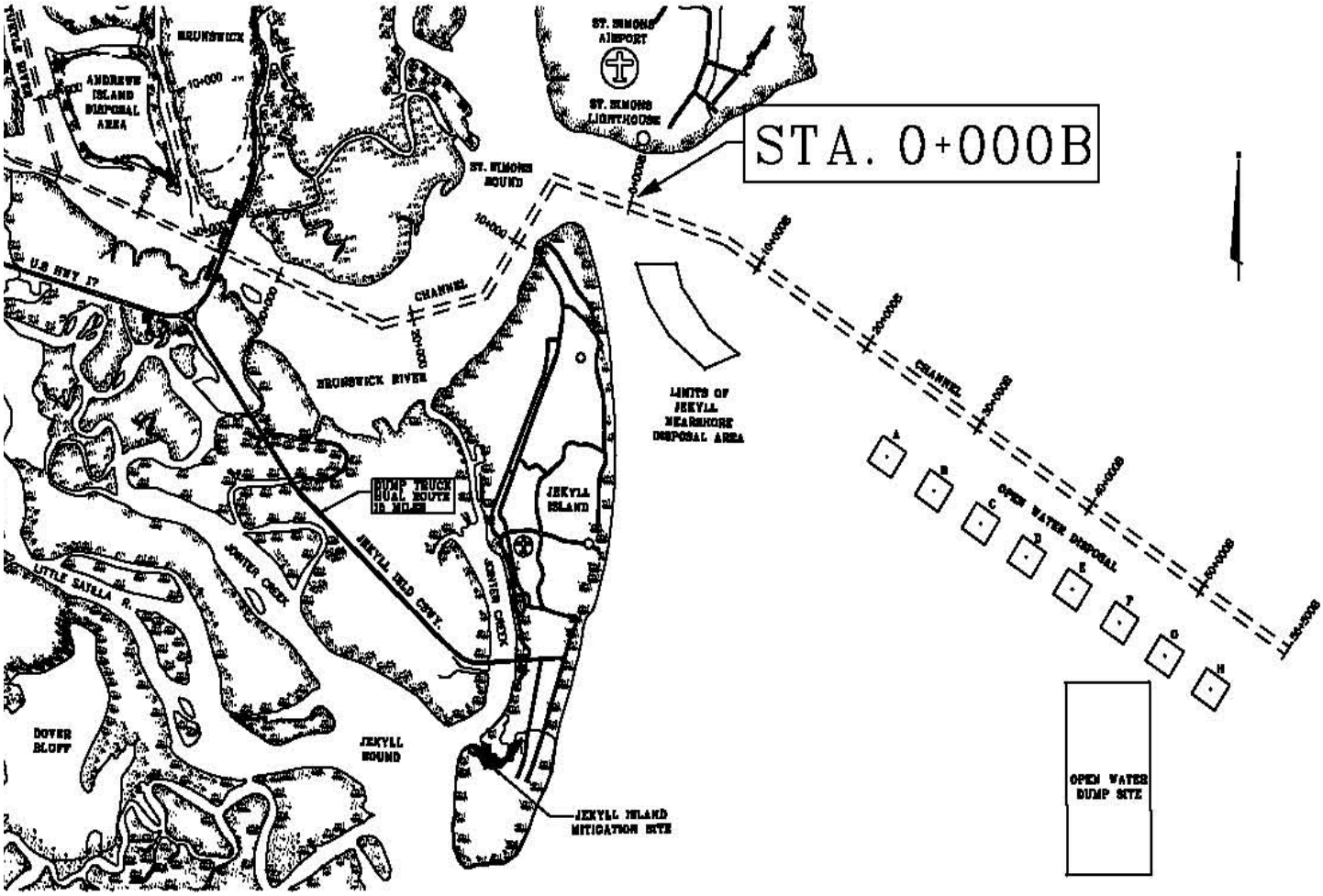

Figure 1: Dredging Locations

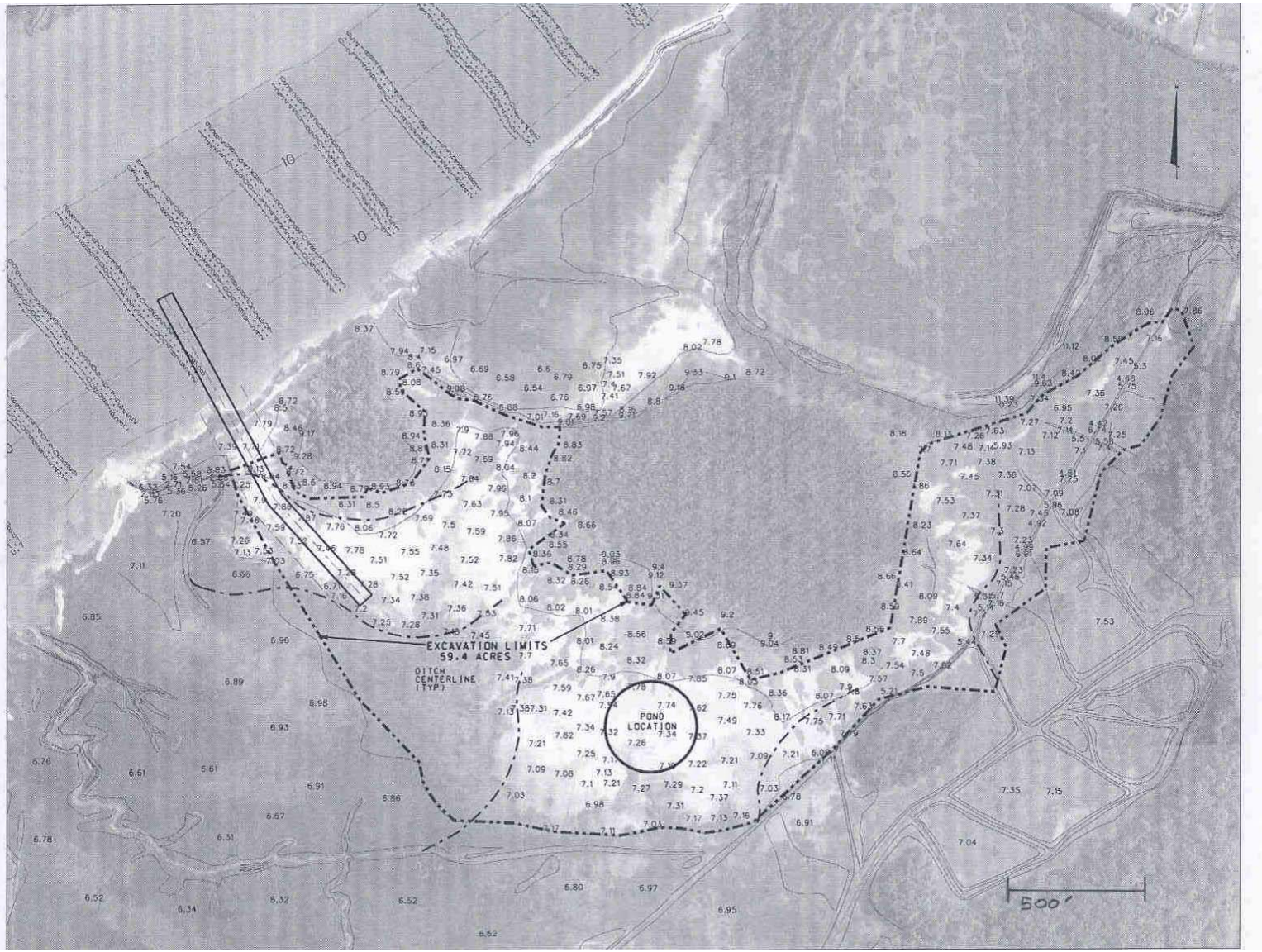

Figure 2 - Wetland Mitigation Plan and Proposed Barge Canal

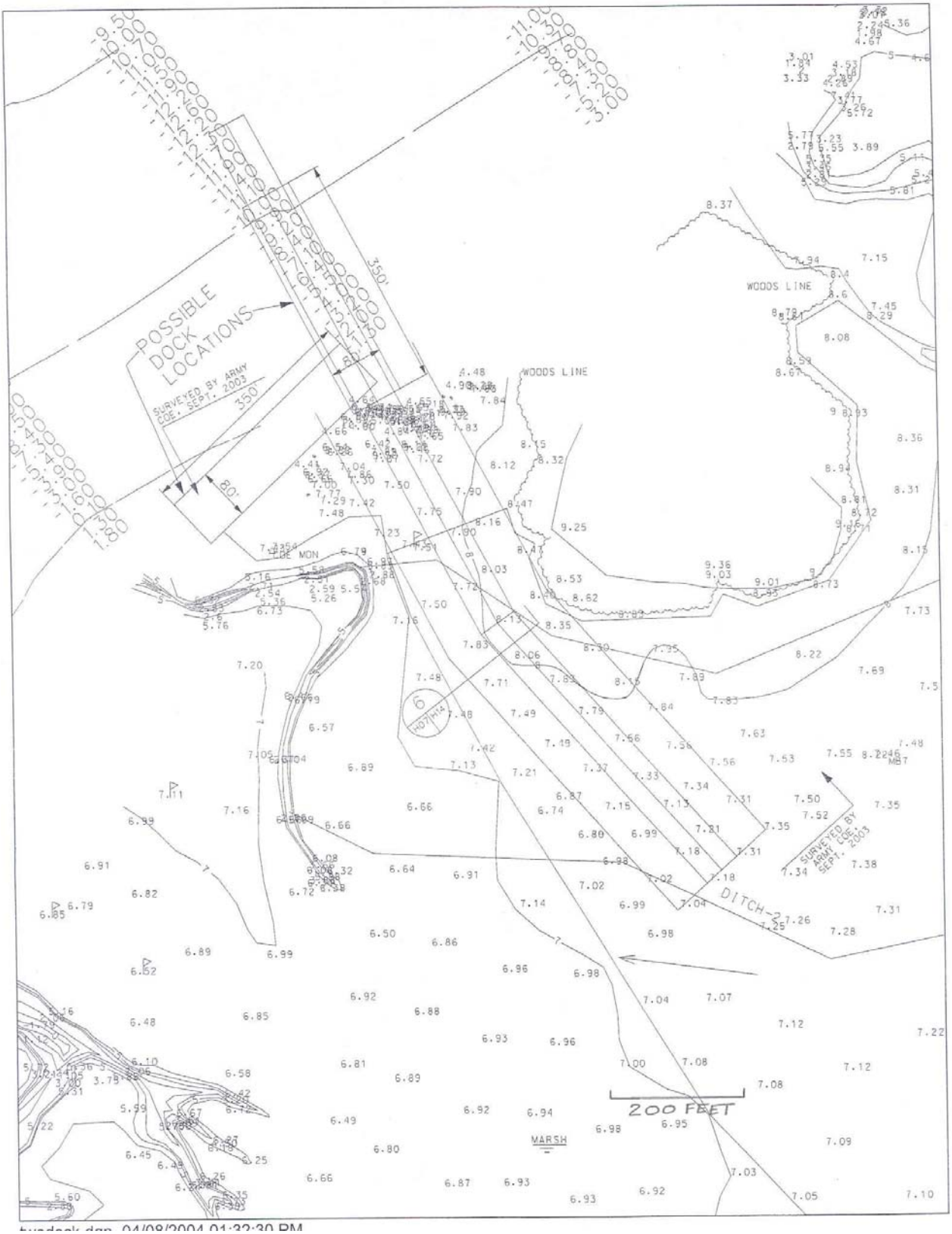

Figure 3 – Proposed Temporary Docking Facilities

APPENDIX B

Distribution List for Draft Environmental Assessment

Agencies Receiving Notification by Letter, including draft EA:

Mr. Heinz J. Mueller, Chief
Environmental Policy Section
US Environmental Protection Agency
61 Forsythe Street, SW.
Atlanta, Georgia 30303-3104

Honorable Lonice Barrett, Commissioner
Georgia Department of Natural Resources
205 Butler Street, SE.
East Floyd Tower, Suite 1252
Atlanta, Georgia 30334

Ms. Susan Shipman
Georgia Department of Natural Resources
Coastal Resources Division
One Conservation Way
Brunswick, Georgia 31523-8600

Carol A. Couch, Ph.D, Director
Environmental Protection Division
Georgia Department of Natural Resources
205 Butler Street, SE.
East Floyd Tower, Suite 1152
Atlanta, Georgia 30334

Ms. Barbara Jackson, Administrator
Georgia State Clearinghouse
Office of Planning and Budget
270 Washington Street, SW., 8th Floor
Atlanta, Georgia 30334-8500

Mr. Greg Hogue
Regional Environmental Officer
US Department of Interior
Office of Environmental Policy and Compliance
Richard B. Russell Federal Building
75 Spring Street, SW, Suite 1144
Atlanta, Georgia 30303

Mr. David Bernhardt
Acting Assistant Regional Administrator
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
9721 Executive Center Drive N
St. Petersburg, Florida 33702

Mr. David Rackley
National Marine Fisheries Service
Habitat Conservation Division
217 Fort Johnson Road
Charleston, South Carolina 29412-9110

Mr. Strant Colwell
Assistant Field Supervisor
Coastal Sub-office, Georgia Ecological Services
US Fish and Wildlife Service
4270 Norwich Street
Brunswick, Georgia 31520

Coastal Georgia Regional Development Center
P.O. Box 1917
Brunswick, Georgia 31521-1917

Glynn County Public Library
208 Gloucester Street
Brunswick, Georgia 31520

St. Simons Island Public Library
Old Casino Building
St. Simons Island, Georgia 31522

APPENDIX C

Comments Received During Public and Agency Review of Draft Environmental Assessment and Subsequent Coordination of Additional Alternatives

A. Coordination of Proposed Plan. The District coordinated proposed plans by three documents:

1. Joint Public Notice dated April 30, 2004 (see Appendix A).

2. Email from James S. Calver dated April 26, 2006.

"This is a request for approval of an April 2004 draft EA "Proposed Modification of the Wetland Mitigation Plan" for the Brunswick Harbor Deepening Project that is being revised to include minor modifications. These minor modifications to the Project greatly reduce potential overall environmental impacts. Construction on parts of the Deepening Project began in 2002. Depending on the availability of funding, the project should be completed in 2008.

In the 1998 Brunswick Deepening FEIS we stated we expected to impact 1 acre of wetlands from construction of seven new weirs and 2 pipe ramps and 17.1 acres of wetlands due to construction of a new turning basin in East River (total wetland impact of 18.1 acres).

A wetland mitigation plan that involves restoration of 59.4 acres of previously impacted marsh on Jekyll Island has been approved. We sent out a public notice on April 30, 2004, providing notice of a draft EA proposing changes to the wetland mitigation plan. Those proposed changes involved construction techniques and sediment placement alternatives. We received several comments to that proposal suggesting alternate mitigation plans as well as other technical comments. That EA has not been finalized.

A recent cost estimate for the approved mitigation plan was approximately 8-10 million dollars (substantially higher than our original estimate of about $750,000). It is also likely that this estimate may be low due to rising fuel costs. Due to the high cost of this mitigation plan, we have been investigating other alternatives that can reduce the proposed amount of wetland impacts, and thus the cost of wetland mitigation.

We are now proposing to drop plans to construct a new turning basin in East River, but to instead enlarge the existing East River Turning Basin. We have marked the wetland boundary at the site and determined that this new proposal will impact approximately 5.9 acres of wetlands. Including 1 acre for other project wetland impacts, the proposed wetland impact for the Deepening Project should be approximately 6.9 acres, or about 38 percent of the original wetland impact proposal.

We have developed an on site wetland mitigation plan for the reduced wetland impacts. This plan involves excavation to marsh level of old dredged material mounds along the east end of Andrews Island outside the existing CDF dikes and adjacent to the dredging (impact) area.

We believe the new plan resolves issues and comments related to the originally proposed wetland impacts and mitigation plan. We intend to finalize the draft EA to include the new turning basin and wetland mitigation plan.

Proposed mitigation consists of excavation to restore areas 4 (1.1 acres), 5 (0.3 acre), 7 (0.8 acre), 10 (1.5 acres), 11 (2.0 acres), 12 (1.2 acres), and J (5.9 acres) to an elevation suitable for natural regeneration by Spartina marsh. A 30-ft wide shelf at marsh level would also border the edge of the enlarged turning basin. This is a total of 14.1 acres. We believe this adequately compensates for the 6.9 acres of total wetland impact for the project. Monitoring would be as originally proposed.

I have attached figures that show footprints of the originally proposed new turning basin, the downstream existing turning basin, and the currently proposed expansion of the existing turning basin. Also shown are the high ground areas that will be excavated to adjacent Spartina marsh elevation as wetland mitigation and the 30-ft wide shelf at marsh level around the edge of the enlarged turning basin.

NMFS. We received approval of the EFH assessment for modifications to the original mitigation plan from the Habitat Conservation Division of the National Marine Fisheries Service by letter dated May 25, 2004. This letter included several concerns including temporary impacts to adjacent marsh. We believe our revised proposal should reduce temporary and overall wetland impacts. We ask that this agency concur that the proposed revisions do not alter their concurrence.

GADNR Water Quality Certification. We received water quality certification for the proposed modifications from the Georgia Department of Natural Resources by letter dated May 24, 2004. We believe the currently proposed modification greatly reduces proposed wetland impacts. We ask that this agency concur that the currently proposed modifications do not alter their decision to issue water quality certification for this project modification.

GACZM. We received a number of technical comments and questions by letter dated May 28, 2004, from the Director, Coastal Resources Division, concerning our Federal Consistency Determination. These questions involved primarily potential trucking impacts to Jekyll Island, potential marsh impacts, and the proposals to construct temporary dock facilities at the Jekyll Island site. We believe our proposal to enlarge the existing turning basin in East River greatly reduces potential marsh impacts by the project. In addition, we are eliminating any proposed work at Jekyll Island. We intend to finalize the Federal Consistency Determination to reflect our revised proposal. We ask that this agency now find our proposal consistent with their program to the maximum extent practicable.

EPA Section 103 Concurrence. We intend to eliminate from the Final EA the Section 103 Evaluation concerning potential transport and disposal of mitigation site sediments to the Brunswick ODMDS. No Section 103 concurrence is now required.

EPA Clean Air Act. We did not received any comments from EPA. We believe our proposed large reduction in wetland impacts and required mitigation construction greatly reduces potential overall project environmental impacts. Unless we hear otherwise, we will assume that these revisions, which will result in less environmental impacts, will also be acceptable to EPA.

USFW Fish and Wildlife Coordination Act. The draft EA stated that no separate report was deemed necessary. We believe our proposed large reduction in wetland impacts and required mitigation construction greatly reduces overall project environmental impacts. We ask the USFWS concurrence that no separate report is necessary and finalizing the EA is appropriate.

I request that you provide your comments within two weeks, if possible."

3. Email from James S. Calver dated September 20, 2006.

"On April 27, 2006, I sent you an email requesting concurrence in our plans to modify the Brunswick Harbor Deepening Project. You may recall that we are proposing to enlarge the existing turning basin in East River, rather than build a new turning basin upstream of the original one. Our wetland mitigation proposal consists of excavating to marsh elevation old dredge material mounds along the outside of the Andrews Island dikes. In response to comments on our request, I have discussed our plans with several of you and we have made changes which I believe address the concerns that were raised. I am attaching final design drawings for our proposal, along with a revised wetland SOP compliance document. You should note that figure ERTB-4 shows proposed transition areas on the north and south sides of the proposed turning basin enlargement. These areas would make entering and leaving the turning basin much easier. However, they are currently proposed to be included as contract options. They may or may not be constructed, depending on funding.

As stated in my previous email, we are asking for your approval of this modification to the Brunswick Harbor Deepening Project as a minor modification requiring no additional NEPA review. It is our intention that the April 2004 draft EA "Proposed Modification of the Wetland Mitigation Plan" for this project be finalized by including the proposed modification as the selected alternative. We believe the proposed modifications can be considered minor since they reduce overall environmental impacts.

In the 1998 Brunswick Deepening FEIS we stated we expected to impact 1 acre of wetlands from construction of seven new weirs and 2 pipe ramps and 17.1 acres of wetlands due to construction of a new turning basin in East River (total wetland impact of 18.1 acres). The proposed modification reduces project wetland impacts to 5.9 acres for the turning basin construction, 0.4 acres for ditches to the mitigation sites, and 1 acre for construction of new weirs and pipe ramps (total wetland impact of 7.3 acres), or about 40 percent of the original wetland impact proposal. Proposed mitigation consists of excavation to restore Areas 2 (0.6 acre), 4 (1.1 acres), 5 (0.3 acre), 6 (0.1), 7 (0.7 acre), 8 (1.1), 10 (1.4 acres), 11 (2.1 acres), 12 (1.1 acres), and J (5.9 acres) to an elevation suitable for natural regeneration by Spartina marsh and consistent with the elevation of adjacent existing marsh (+6 ft mlw). A 70-ft wide shelf at marsh level would also be constructed bordering the edge of the enlarged turning basin (to produce a minimum of 2.3 acres of marsh). This results in a total of 16.7 acres. These areas are shown in the attached figures. We believe this adequately compensates for the 7.3 acres of total wetland impact for the project. Monitoring would be as originally proposed.

We have also estimated the amount of impacts to Waters of the U.S. for construction of a turning basin, under the old plan and the new one. These are shown in the following table. This table shows that although the area of Waters of the U.S. that will be disturbed by dredging is about the same in both proposals, the new plan greatly increases the amount of created waters (since part of the turning basin will be constructed from high ground on Andrews Island).

	Old Plan	New Plan	New Plan with Transitions
Acres of disturbed Waters of the U.S.	31.4 acres	16.8 acres	31.1 acres
Additional created Waters of the U.S.	2.2 acres	15.2 acres	15.2 acres

I am including below requests most of which were made to specific agencies in the April email.

NOAA Fisheries. We received approval of the EFH assessment for modifications to the original mitigation plan from the Habitat Conservation Division by letter dated May 25, 2004. This letter included several concerns including temporary impacts to adjacent marsh. We believe our revised proposal should reduce temporary and overall wetland impacts. We ask that this agency concur that the proposed revisions do not alter their concurrence.

NMFS Protected Resources. We believe that since the proposed work involves essentially the same amount of dredging of Waters of the U.S. as originally proposed, this modification would have no additional effect on Federally listed threatened and endangered Species or marine mammals under the purview of NMFS. We request concurrence in this determination.

GADNR Water Quality Certification. We received water quality certification for the proposed modifications from the Georgia Department of Natural Resources by letter dated May 24, 2004. We believe the currently proposed modification greatly reduces proposed wetland impacts. We ask that this agency concur that the currently proposed modifications do not alter their decision to issue water quality certification for this project modification.

GADNR CZM. We received a number of technical comments and questions by letter dated May 28, 2004, from the Director, Coastal Resources Division, concerning our Federal Consistency Determination. These questions involved primarily potential trucking impacts to Jekyll Island, potential marsh impacts, and the proposals to construct temporary dock facilities at the Jekyll Island site. We believe our proposal to enlarge the existing turning basin in East River greatly reduces potential marsh impacts by the project. In addition, we are eliminating any proposed work at Jekyll Island. We intend to finalize the Federal Consistency Determination to reflect our

revised proposal. We ask that this agency now find our proposal consistent with their program to the maximum extent practicable.

EPA Section 103 Concurrence. We intend to eliminate from the Final EA the Section 103 Evaluation concerning potential transport and disposal of mitigation site sediments to the Brunswick ODMDS. No Section 103 concurrence is now required.

EPA Clean Air Act. We received comments from the wetlands section regarding aspects of the mitigation plan, including acreage calculations, baseline data, and potential TMDL modeling. We have data documented the upland condition of the proposed mitigation areas. We also revised the wetland mitigation requirements and added additional acreage to the plan. We believe our proposed large reduction in wetland impacts and required mitigation construction greatly reduces potential overall project environmental impacts which should not require any TMDL study. We ask for concurrence that the proposed revisions are minor in scope and can be included in the final EA without further NEPA consideration.

USFWS, NMFS, GADNR Fish and Wildlife Coordination Act. The draft EA stated that no separate report was deemed necessary. We believe our proposed large reduction in wetland impacts and required mitigation construction greatly reduces overall project environmental impacts. We ask the USFWS, NMFS, and GADNR for concurrence that no separate report is necessary and finalizing the EA as proposed is appropriate.

USFWS Endangered Species Act. We believe that since the proposed work involves essentially the same amount of dredging of Waters of the U.S. as originally proposed, this modification would have no additional effect on Federally listed threatened and endangered Species or marine mammals under the purview of the USFWS. We request concurrence in this determination.

It is important that we conclude our environmental work as soon as possible to avoid additional construction delays. A timely response to our request would be greatly appreciated. If I do not receive a response to this email in the near future, I will call you to discuss your views. A recent policy change requires us to have corresponded directly with each agency to document their position on requests such as this."

B. Comments and Responses.

1. Georgia DNR, EPD, letter dated May 24, 2004 (see letter #3, below). The agency provided Water Quality Certification for the proposed Jekyll Island Mitigation modification.

District Response. This Water Quality Certification was received prior to the proposed modification to enlarge the existing East River Turning Basin.

2. GADNR email dated 13Dec 06.

-----Original Message-----
From: Kelie Moore [mailto:Kelie_Moore@dnr.state.ga.us]

Sent: Wednesday, December 13, 2006 1:45 PM
To: Bailey, William G SAMatSAS
Cc: Brad Gane; Jan Sammons; Keith Parsons; Kathy Chapman; Kay Davy
Subject: Re: Brunswick Harbor East River Turning Basin

The Georgia CRD issued an initial Federal Consistency Determination Concurrence for deepening the Brunswick Harbor on April 31, 1998. Since that time, CRD has issued several modifications for various changes in the deepening project, including a Federal Consistency Determination Concurrence on February 7, 2002.

The present request for modification for changes in the East River Turning Basin has been reviewed by this office with coordination with the DNR, Environmental Protection Division. It is the determination of this office that the proposed changes are minor in nature and result in actual reduced impacts of the overall project. Subsequently, the existing Federal Consistency Determination Concurrence shall remain in effect, as will any pertinent condition of the previously issued modifications.

Should you have questions regarding this determination or require additional clarification please contact me. Thank you.

Kelie Moore
Technical Assistant
DNR Coastal Resources Division

>>> Keith Parsons 12/13/2006 10:31 am >>>
All,

The Georgia EPD issued an initial Section 401 Water Quality Certification for deepening the Brunswick Harbor on January 30, 2002.
Since that time, EPD has issued three modifications for various changes in the deepening project via Section 401 Certifications.

The present request for modification for changes in the East River Turning Basin has been reviewed by this office with coordination with the DNR, Coastal Resources Division. It is the determination of this office that the proposed changes are minor in nature and result in actual reduced impacts of the overall project. Subsequently, the existing Water Quality Certification shall remain in effect, as will any pertinent condition of the previously issued modifications.

Should you have questions regarding this determination or require additional clarification please contact me.

Thanks

Keith Parsons
Georgia DNR-EPD

4220 International Parkway
Suite 101
Atlanta, Georgia 30354
Office: 404/675-1631
Fax: 404/675-6245
Classification: UNCLASSIFIED
Caveats: NONE

District Response. This email states that the proposed modification to enlarge the existing East River Turning Basin is covered by the existing Water Quality Certification. No additional coordination is required or appropriate.

3. Georgia DNR, Coastal Resources Division, letter dated May 28, 2004 (see letter #6, below). The Coastal Resources Division asked a number of questions concerning the proposed Jekyll Island Mitigation modification.

District Response. The District responded to those questions by letter dated December 2, 2004. Those comments and responses are not relevant to the currently selected alternative. The proposed modification to enlarge the existing East River Turning Basin was coordinated with the GADNR. By email dated 13 Dec 06, the agency stated they have reviewed the proposed East River Turning Basin modification and found that the Federal Consistency determination and their concurrence remain in effect (see email and discussion under comment #2, above). No additional coordination is required or appropriate.

4. City of Brunswick, letter dated June 25, 2004 (see letter #5, below). The City urged the District to thoroughly investigate the Wainwright proposal, as they felt it could result in cost savings beautification of the U.S. 17 corridor.

District Response. The District considered Mr. Wainright's proposal, along with other potential alternatives to the Jekyll Island mitigation plan. Because of problems with each of the proposals, the District looked for ways to reduce the amount of required wetland mitigation. The District found that enlarging the existing East River Turning Basin, rather than building a new turning basin, would reduce wetland impacts from 18.1 to 7.3. This produces required mitigation of 16.7 acres rather than 59.4 acres. Because of the large decrease in potential wetland impacts, the District is now proposing to modify the Deepening Project to include expansion of the East River Turning Basin.

5. State of Georgia, Office of Planning and Budget, memorandum dated May 26, 2004 (see letter #2, below). The Georgia State Clearinghouse stated that the proposed activity was found consistent with state social, economic, physical goals, policies, plans and programs with which the State is concerned. That memorandum included an additional memorandum from the DNR Water Protection Branch with the same findings.

District Response. Because the proposed modification would result in essentially no change in impacts to Waters of the U.S. and would greatly reduce wetland impacts, the District believes no additional coordination with this agency is necessary.

6. NMFS, Endangered Species. By email dated October 2, 2006, Eric Hawk stated "If the work is being done under the authority of the SAD RBO, then you're good to go as long as no bed leveling is involved, unless the consultation you mention on bed-leveling included the proposed action as it now is proposed."

District Response. Since the NMFS has provided concurrence that the proposed modification can be conducted under the existing Regional Biological Opinion, no additional coordination of this issue is necessary.

7. NOAA Habitat Conservation Division.

a. Letter dated May 25, 2004 (see letter #7, below). Response was provided under the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act. The agency stated they did not object to the project but would support an effort to convert more of the filled wetlands on the proposed mitigation site to saltmarsh.

b. Email from Kay Davy, NMFS Habitat Conservation Division, to Steve Calver, SAM-PD-EC, October 3, 2006. "I am responding on behalf of David Rackley, who previously reviewed this project, but is now retired. NMFS has reviewed the forwarded emails, previous letters, and the comments submitted by the other agencies. Considering that the revisions should reduce temporary and overall wetland impacts, NMFS concurs that the proposed revisions do not alter our previous concurrence as stated in our letter dated May 25, 2004."

District Response. Since the NMFS has stated their EFH Determination concurrence covers the East River Turning Basin Enlargement modification, no additional coordination of this issue is necessary.

8. EPA.

a. (Bob Lord email, May 2, 2006). I have reviewed the proposed revised compensatory mitigation plan for the Brunswick Harbor deepening project and before the EPA Wetlands Regulatory Section can provide a detailed assessment, I have the following questions and comments.

1. We appreciate the Savannah District further reducing impacts and proposing on-site and in-kind mitigation (though the Jekyll Island site was also considered on-site and in-kind).

2. However, the mitigation plan lacks sufficient detail for an in depth evaluation. I would refer you to the Savannah District's April 2004 Standard Operating Procedure (SOP) for developing mitigation plans and calculating mitigation requirements. I assume you would want to follow your District's own procedure, the same procedure that is required of all other private, state and federal applicants for permits to impact coastal wetlands and water bottoms. The SOP outlines the basic information needed for a compensatory mitigation plan, including a mitigation information checklist. It notes the need for baseline data on the proposed mitigation site, an assessment of the level of impairment of the mitigation site, an assessment of the potential

functional lift as measured against reference site data, quantified success criteria and a seven year monitoring program to ensure the criteria are met. While your revised plan has many merits conceptually, it lacks these details.

3. The SOP can serve as a guide to assess the detail and adequacy of a compensatory mitigation plan. Using the SOP, I have made a rough calculation of the mitigation credit requirements for the revised project. The calculation is rough and certainly subject to revision due to the lack of some information. However, assuming that you will be dredging fully functional salt marsh, a wetland type that generally receives the maximum adverse impact factors for kind and rarity, I estimate that you will need approximately 75 wetland mitigation credits for the 6.9 acres of direct salt marsh impact. Note that this does not include impacts to estuarine waters/open waters/water bottoms, which the SOP can also calculate (and as been done for other estuarine impacting projects).

4. I have also run the SOP for the proposed 12.8 acres of wetland restoration for the 7 areas (4, 5, 7, 10, 11, 12, and J). Assuming this will nearly completely restore both wetland vegetation and natural hydrology (both of which need to documented in baseline and monitoring data) to currently non jurisdictional areas, will be done concurrent with the impacts, will have an excellent monitoring plan and will have some level of permanent protection, I calculate the action will generate approximately 54 wetland mitigation credits.

5. I am unclear about the proposed 30-foot wide "shelf" along one side of the turning basin, which seems to total 1.3 acres (14.1 - 12.8 = 1.3). Is this a restoration action equivalent to the other areas? If so, it would generate an additional 5.5 credits. A preservation area will generate much less, if any, credit. Baseline data are also needed for this area. Also, note that all wetland mitigation areas are required to have upland buffers and none are shown for these areas.

6. So, at best and based on the limited data, the revised mitigation plan would provide 59.5 wetland credits, which is well below the required 75 credits. Additional data and a more detailed mitigation plan should help refine these numbers.

7. The Turtle River system is on Georgia's 303d list as an impaired estuary and TMDLs have been developed for these waters. I would recommend that the direct, secondary and cumulative water quality impacts from the project be assessed in relationship to the TMDLs. This has been done via modelling for other harbor deepening projects.
Perhaps FWS and NMFS can comment on the wildlife, T&E, and essential fish habitat values of the project area and the adequacy of the revised mitigation plan to compensate for any impacts.

8. I would also be interested in why the mitigation costs at the Jekyll Island site increased so dramatically from the original estimates.
While a maximum cost of approximately $169,000 per acre seems very high, it should be noted that the March 13, 2006, USACE Draft Environmental Assessment for the Proposed Compensatory Mitigation Regulation cites per credit mitigation costs as high as $350,000. The same report places an ecosystem value on an acre of tidal marsh of $4,046 per year. Furthermore, the report values "estuaries" at $9,247 per year, coastal waters at $1,641 per year, seagrass/algae beds at $7,697 per year and open ocean at $102 per year on a per acre basis. The

Brunswick Harbor deepening project will have impacts to all of these habitat types, though mitigation is currently now only being assessed for the direct salt marsh loss.

9. In summary, we appreciate the additional avoidance and minimization of project impacts, as these are the best mitigative measures under the Section 404(b)(1) Guidelines. The revised conceptual compensatory mitigation proposal has merit. However, considerably more information is needed to be able to provide detailed comments, to determine the adequacy of the proposal, and, it would seem, to be used in final the EA to reach a Finding of no Significant Impact.

Thank you for the opportunity to review this conceptual mitigation plan.

b. **Bob Lord email, October 2, 2006.** Sorry about the delay in responding to your September 20, 2006, email.

The EPA Wetlands Regulatory Section has reviewed the revised mitigation plan, including the SOP calculations, attached to your email. We appreciate your responses to our past comments, the further reduction of project impacts, and your use of the Savannah District SOP to assess the impacts and adequacy of the compensatory mitigation plan. While we recognize that your program may not have had direct input in the development of the SOP (you may want to get more involved in the future as the SOP is currently undergoing revision), it is the standard approach in use in Georgia. Your use of the SOP helps serve as guide to all other federal, state, local and private enterprise projects that impact salt marsh. Clearly the Savannah District is "leading by example" but using the SOP for its own civil works projects.

Based on the information provided in your September 20, 2006, email, the EPA Wetlands Regulatory Section has no objection to the revisions in the project and the substitution of this revised mitigation plan. We would appreciate being copied on the monitoring reports.

c. **Telcon between Bill Bailey (SAM-PD-E) and Gerald Miller (EPA, Clean Air/NEPA Compliance) on October 6, 2006.** Mr. Miller stated that he was aware that the Wetlands Unit (Bob Lord) had approved the proposed modifications. They had no objections to the proposed modifications but would not be sending any additional comments.

District Response. Since the EPA has stated their approval of the proposed East River Turning Basin enlargement, no additional coordination of this issue is necessary.

9. USFWS. By 28 Nov 06 letter to Colonel Mark S. Held from Sandra S. Tucker, Field Supervisor, the Service stated the following:

“The U.S. fish and Wildlife Service (Service) has reviewed the modified plans to the Brunswick Harbor Deepening Project in Glynn County, Georgia. The current proposal is to enlarge the existing turning basin in the East River rather than constructing a new turning basin. The proposed modification would result in a reduction in wetland impacts from 18.1 to 7.3 acres.

Since much of the turning bsin enlargement would come from high ground on Andrews Island spoil site, the proposed plan would result in an increase in created waters of the United States (U.S.) from 2.2 acres to 15.2 acres. With inclusion of new transition areas associated with the turning basin enlargement, disturbed waters of the U.S. would decrease slightly from 31.4 to 31.1 acres. We agree that the proposed modification would result in a decrease in overall environmental impacts.

By was of a letter dated October 4, 2006, the Corps of Engineers adopted the measures included in the Service's Deepening Project Biological Opinion dated March 6, 1998. We agree that the proposed work involves essentially the same amount of dredging of waters of the U.S. as originally proposed, would be consistent with our 1998 opinion, and no additional consultation is needed. In view of this, we believe that the requirements of section 7 of the Endangered Species Act have been satisfied. However, obligations under section 7 of the Act must be reconsidered if: (1) new information reveals impacts of this identified action that may affect listed species or critical habitat in a manner not previously considered; (2) this action is subsequently modified in a manner which was not previously considered in this assessment; or (3) a new species is listed or critical habitat determined that may be affected by the identified action."

District Response. The Service has stated no objection to the proposed East River Turning Basin modification and has stated that requirements of Section 7 of the Endangered Species Act have been satisfied. No further coordination with the agency is required.

10. Catts & Brooks, LLC, Trial Attorneys, letter dated May 28, 2004 (letter #1, below). The firm stated they represented the owners of Little St. Simons Island. They went on to state that their clients had engaged the firm of Butch Register and Associates to develop an alternative Wetland Mitigation Plan ("LSSI Mitigation Plan"). They pointed out negative aspects of the Jekyll Island Mitigation Plan and positive aspects of the LSSI Mitigation Plan, including cost savings over the Jekyll Island Mitigation Plan. They requested the District review the LSSI Mitigation Plan as an alternative to the Jekyll Mitigation Plan and further requested the Corps extend the comment period for at least another 60 days and schedule a public hearing "to continue an exploration of the public benefits of this alternate mitigation strategy".

District Response. In response to this request, District staff visited the site and discussed this plan with the proponents on several occasions. Sufficient information was gained to obviate the necessity for a public hearing. The District considered the Little St. Simons Island proposal, along with other potential alternatives to the Jekyll Island mitigation plan. Because of problems with each of the proposals, the District looked for ways to reduce the amount of required wetland mitigation. The District found that enlarging the existing East River Turning Basin, rather than building a new turning basin, would reduce wetland impacts from 18.1 to 7.3. This produces required mitigation of 16.7 acres rather than 59.4 acres. Because of the large decrease in potential wetland impacts, the District is now proposing to modify the Deepening Project to include expansion of the East River Turning Basin.

11. R. Gary Wainright, Attorney and Counselor at Law, letter dated June 22, 2004 (letter #4, below). Mr. Wainright proposed that dredged material from the Deepening Project be pumped into East Bay, a tidal basin east of Glynn Ave./U.S. 17 and south of the F.J. Torras Causeway.

His proposal would recreate Dart's Creek and further the goal of restoration of surrounding saltmarsh (the Marshes of Glynn). His letter also pointed out negative aspects of the proposed Jekyll Island Mitigation Plan and predicted cost savings from the selection of his plan.

District Response. District staff met with Mr. Wainright, thoroughly reviewed the proposal, and considered Mr. Wainright's proposal, along with other potential alternatives to the Jekyll Island mitigation plan. Because of problems with each of the proposals, the District looked for ways to reduce the amount of required wetland mitigation. The District found that enlarging the existing East River Turning Basin, rather than building a new turning basin, would reduce wetland impacts from 18.1 to 7.3. This produces required mitigation of 16.7 acres rather than 59.4 acres. Because of the large decrease in potential wetland impacts, the District is now proposing to modify the Deepening Project to include expansion of the East River Turning Basin.

12. Choctaw Nation of Oklahoma, Cultural Resources, letter dated 18 Sep 06.

"We have reviewed the following proposed project(s) as to its effect regarding religious and/or cultural significance to historic properties that may be affected by an undertaking of the projects area of potential effect. Entity Requesting Service: U.S. Army Corps of Engineers, Savannah District. Project Name: Constructing the basin and creating the wetland areas to migrate(sic) for marsh that would be destroyed by turning basin construction. County: Brunswick Harbor, Glynn County, Georgia. Comments: After further review of the above mentioned project(s), to the best of our knowledge it will have no adverse effect on any historic properties in the project's area of potential effect. However, should construction expose buried archaeological or building materials such as chipped stone, tools, pottery, bone, historic crockery, glass or metal items, this office should be contacted immediately @ 1-800-522-6170 ext. 2137. Sincerely, Terry D. Cole, Tribal Historic Preservation Officer, Choctaw Nation of Oklahoma.

District Response: No additional coordination required. Construction contract requires that work stop if archaeological resources are discovered.

C. Comment Letters.

1. Catts & Brooks, LLC, Trial Attorneys. May 28, 2004.

2. Georgia Office of Planning & Budget, Georgia State Clearinghouse Memorandum. May 26, 2004.

3. Georgia DNR Water Quality Certification. May 24, 2004.

4. R. Gary Wainright, Attorney & Counselor at Law. June 22, 2004.

5. City of Brunswick. June 25, 2004.

6. Georgia Coastal Resources Division. May 28, 2004.

7. NOAA, NMFS, Habitat Conservation Division. May 28, 2004.

CATTS & BROOKS, LLC
TRIAL ATTORNEYS
1529 REYNOLDS STREET
P.O. BOX 1554
BRUNSWICK, GEORGIA 31520
TELEPHONE: (912) 261 8448
TELECOPIER: (912) 261-7919

May 28, 2004

Mr. James S. Calver

james.s.calver@sas02.usace.army.mil
VIA E-MAIL

RE: Comments to Corps on the Proposed Modification of Wetland Mitigation Plan and the Evaluation of and Suitability of the Jekyll Creek Channel Sediment for Transport and Disposal in the Brunswick CDMDS Regarding the Brunswick Harbor Deepening Project to be Directed to the District Engineer and the Planning Division, Environmental Resources Branch of the US Army Corps of Engineers, ATTN: Mr. Steve Calver

Dear Mr. Calver,

This firm represents the Owners of Little St. Simons Island in Glynn and McIntosh Counties, Georgia. On behalf of my clients I am writing a response to the JOINT PUBLIC NOTICE OF THE SAVANNAH DISTRICT, CORPS OF ENGINEERS AND THE GEORGIA DEPARTMENT OF NATURAL RESOURCES dated April 30, 2004, concerning the Brunswick Harbor Deepening Project Wetland Mitigation Plan ("Jekyl Mitigation Plan").

Our clients have engaged Register and Associates of McDonough, Georgia to propose on their behalf to the United States Army Corps of Engineers and other agencies an alternative Wetland Mitigation Plan ("LSSI Mitigation Plan"). This plan is in the development/concept phase, but a preliminary plan outline will be provided in the near future and has been generally described.

We specifically request that the Savannah District, Corps of Engineers, and the Georgia Department of Natural Resources, and other agencies required to do so, review the LSSI Mitigation Plan as an alternative to the Jekyll Mitigation Plan, which is the subject of the April 30, 2004, Joint Public Notice. We also request that the Corps extend the present comment period for at least another sixty (60) days, and schedule a public hearing to continue an exploration of the public benefits of this alternate mitigation strategy.

The LSSI Mitigation Plan will include perpetual preservation of a substantial amount of highly productive salt marsh, restoration and enhancement of a substantial amount of impacted salt marsh, preservation and enhancement of an ecologically important wetland complex, the perpetual protection of such wetlands and of an adjacent

surrounding upland buffer containing valuable ecological and geological features.

The LSSI Mitigation Plan is a far superior alternative to the present Jekyll Mitigation Plan and is the least damaging of any practicable alternative available to mitigate the planned destruction of 18 acres of salt marsh in the Brunswick ship channel.

We ask you to consider that the Jekyll Mitigation Plan as recently modified or otherwise, and any of its associated alternatives (A – E), individually or in combination, have many inevitable temporary and permanent adverse impacts on conservation, economics, esthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, flood plane values, land use, allocation, shoreline erosion/accretion, recreation, water supply/quality, safety, environmental justice and in general the needs and welfare of the people, inclusive without limitation.

Many of these adverse impacts should have been detailed in comments which have been made in response to the April 30, 2004, Joint Public Notice and earlier comments concerning the Brunswick Harbor Deepening Project Mitigation Plans. Further, in the various evaluations conducted by the Corps, the Georgia Department of Natural Resources, the Georgia Department of Natural Resources Department of Environmental Protection Division, and other agencies, numerous adverse impacts should have been identified in the record.

We also point out that the Jekyll Mitigation Plan involving proposed excavation and re-vegetation of, and original planting of, spartina salt marsh, has as extensive governmental and private mitigation experience has demonstrated, a questionable chance of success. On the other hand, the LSSI Mitigation Plan, involving simple removal of a dike with no need for such massive excavation and spoils disposal, will utilize the forces of nature (sheet flow, etc.) and other less and non-intrusive methods, which it is well recognized, are ordinarily quite successful.

In making these comments, we recognize that the proposed Jekyll Mitigation Plan is an important project, and that a number of professionals have worked diligently in the public interest to complete the project in the best manner and means they considered to be available to them. However, the Administrative record presented in support of disposal of 420,000 cubic yards of dredged sand fill material violates the Section 404(b)(1) Guidelines by failing to identify and evaluate practicable alternatives to the Jekyll Project that would leave less adverse effects on the environment. Accordingly, we offer the alternative LSSI Mitigation Plan as a plan which will avoid all of the negative impacts associated with the Jekyll Mitigation Plan.

By way of example, the proposed Jekyll Mitigation Plan involves numerous adverse impacts to wetlands, to fish and wildlife, and to shore erosion. It involves extensive construction within the salt marsh environment which temporarily and probably permanently will destroy wetlands, habitat, and fish and wildlife from the proposed temporary barge access route while the canal is excavated; the temporary dock facility is constructed, and as large volumes of excavated materials are transported across roads and/or waterways to be dumped at a spoil site or offshore.

In accordance with federal regulations governing aquatic resource impacts and

mitigation analysis, strong consideration must be given to environmental objectives and costs, technology, and logistics in light of overall project goals. It appears that the LSSI Mitigation Plan is consistent with these regulations while the Jekyll Island Plan is not.

In addition, there is a huge hidden cost associated with the Jekyll Mitigation Project which, according to William Donahue, Executive Director of the Jekyll Island Authority, will eliminate 20% of the remaining developable land inventory on Jekyll Island, a land area of 20 acres. See *Brunswick* News, October 22, 2003, and Exhibit 8, Master Plan Jekyll Island by Lessor & Co., June 30, 1996. The potential permanent loss to the people of Georgia of 20 acres of developable land on Jekyll Island probably has a negative impact of $10 million or more, based on the value of barrier island property in Glynn County.

If Mr. Donahue of the Jekyll Island Authority is correct in his analysis that this project will eliminate 20 of the last 100 remaining acres which could be developed on Jekyll Island, that adverse economic impact may exceed, in order of magnitude, the cost of the Jekyll Mitigation Project, but nowhere in the Jekyll Mitigation Project have we seen any evaluation or recognition of such negative economic, historic, land use, recreation, and environmental justice impact to Jekyll Island and to the interests and welfare of the people of Georgia. Has the subject property been appraised? Has the State of Georgia been provided with credit for local share reflecting such value? Has the Georgia Attorney General approved the transaction notwithstanding the anti-gratuity clause of the Georgia Constitution?

On the other hand, the LSSI Mitigation Plan will be limited to minor excavations and upland disposal of limited materials in suitable zones. It will not require destructive construction measures, offshore dumping of excavated material, destructive creation of ¼ mile barge access channel, or any of the other negative impacts of the Jekyll Plan. Instead, the LSSI Mitigation Plan provides a far superior alternative which will save the State of Georgia from the loss and destruction of millions of dollars worth of valuable development opportunity on Jekyll Island, and which will surely cost, in the final analysis, less money that the Jekyll Mitigation Project.

We further comment that the application of Section 404(b)(1) standards of the Clean Water Act of 1977 to evaluate the LSSI Mitigation Plan will demonstrate that it has virtually no adverse environmental impacts and that it is by far the best practicable alternative to protect, mitigate, and in fact enhance water quality, aquatic ecosystems, and other valuable resources.

Therefore, we request that our comments be considered and made a part of the record; that the Department of the Army give careful consideration to the proposed alternative LSSI Mitigation Plan; that the comment period be extended for sixty (60) days, and a hearing scheduled.

Thanking you for your attention to this correspondence.

I am

Sincerely,

Austin E. Catts

AEC/lah

cc: Honorable Lonice Barrett, Commissioner, Georgia Department of Natural Resources
Mr. Michael G. Berolzheimer, LSSI Owner Project Director
Mr. Duane Harris, LSSI Natural Resource Consultant
Mr. Butch Register, Register and Associates

Office of Planning and Budget

Sonny Perdue
Governor

Timothy A. Connell
Director

GEORGIA STATE CLEARINGHOUSE MEMORANDUM
EXECUTIVE ORDER 12372 REVIEW PROCESS

TO: Steve Calver
U.S. Army COE
Post Office Box 889
Savannah, Georgia 31402-0889

FROM: Barbara Jackson
Georgia State Clearinghouse

DATE: 5/26/2004

SUBJECT: Executive Order 12372 Review

PROJECT: Draft EA/FONSI: Brunswick Harbor Deepening Project (Glynn Co., GA) - Proposed Modification of Wetland Mitigation Plan

STATE ID: GA040503003

The State level review of the above referenced document has been completed. As a result of the environmental review process, the activity this document was prepared for has been found to be consistent with state social, economic, physical goals, policies, plans, and programs with which the State is concerned.

Additional Comments:

None.

/bj
Enc.: DNR Water Protec Branch, May 25, 2004

Form SC-4-EIS-4
January 1995

GEORGIA STATE CLEARINGHOUSE MEMORANDUM
EXECUTIVE ORDER 12372 REVIEW PROCESS

TO: Barbara Jackson
Georgia State Clearinghouse
270 Washington Street, SW, Eighth Floor
Atlanta, Georgia 30334

FROM: MR. KEITH PARSONS
DNR WATER PROTECTION BRANCH

SUBJECT: Executive Order 12372 Review

APPLICANT: U.S. Army COE, Savannah District

PROJECT: Draft EA/FONSI: Brunswick Harbor Deepening Project (Glynn Co., GA) - Proposed Modification of Wetland Mitigation Plan

STATE ID: GA040503003

DATE:

☒ This notice is considered to be consistent with those state or regional goals, policies, plans, fiscal resources, criteria for developments of regional impact, environmental impacts, federal executive orders, acts and/or rules and regulations with which this organization is concerned.

This notice is not consistent with:

☐ The goals, plans, policies, or fiscal resources with which this organization is concerned. (Line through inappropriate word or words and prepare a statement that explains the rationale for the inconsistency. Additional pages may be used for outlining the inconsistencies).

☐ The criteria for developments of regional impact, federal executive orders, acts and/or rules and regulations administered by your agency. Negative environmental impacts or provision for protection of the environment should be pointed out. (Additional pages may be used for outlining the inconsistencies).

☐ This notice does not impact upon the activities of the organization.

RECEIVED
MAY 25 2004
GEORGIA
STATE CLEARINGHOUSE

Form SC-3
February 2004

Georgia Department of Natural Resources
2 Martin Luther King, Jr. Drive, S.E., Suite 1152 East Tower, Atlanta, Georgia 30334-9000
Lonice C. Barrett, Commissioner
Carol A. Couch, Ph.D., Director
Environmental Protection Division
404/656-4713

May 24, 2004

Mr. David V. Schmidt, Chief
Planning Division
U. S. Army Corps of Engineers
P.O. Box 889
Savannah, Georgia 31402-0889

Re: Water Quality Certification
Planning Division
Brunswick Harbor Deepening
Mitigation Modification
Coastal Zone
Glynn County

Dear Mr. Schmidt:

Pursuant to Section 401 of the Federal Clean Water Act, the State of Georgia issues this certification to the U.S. Army Corps of Engineers, Savannah District, an applicant for a federal permit or license to conduct an activity in, on or adjacent to the waters of the State of Georgia.

The State of Georgia certifies that there is no applicable provision of Section 301; no limitation under Section 302; no standard under Section 306; and no standard under Section 307, for the applicant's activity. The State of Georgia certifies that the applicant's activity will comply with all applicable provisions of Section 303.

This certification is contingent upon the following conditions:

1. All work performed during construction will be done in a manner so as not to violate applicable water quality standards.

2. No oils, grease, materials or other pollutants will be discharged from the construction activities which reach public waters.

This certification does not relieve the applicant of any obligation or responsibility for complying with the provisions of any other laws or regulations of other federal, state or local authorities.

It is your responsibility to submit this certification to the appropriate federal agency.

Sincerely,

Carol A. Couch, Ph.D.
Director

CAC:kp

cc: Ms. Susan Shipman
Ms. Sandra Tucker
Mr. Ron Mikulak
Mr. David Rackley
Ms. Kelie Moore

R. GARY WAINRIGHT

ATTORNEY AND COUNSELOR AT LAW

MAIL:
P.O. [illegible]
[illegible]

SEABROOK VILLAGE

ST. SIMONS ISLAND, GEORGIA 31522-2501

[illegible]

FACSIMILE NUMBER:
[illegible]
EMAIL ADDRESS:
[illegible]

FAX COVER SHEET

DATE: June 22, 2004 TIME: 1:11 PM

TO: Mr. T. Alan Garrett, Project Manager
U.S. Army Corps of Engineers
PHONE: 912-652-5172
FAX: 912-652-5819

FROM: Connie S. Davis, Office Administrator
PHONE: (912) 638-5536
FAX: (912) 634-1040

FILE NO.:

RE: Moving marsh restoration project in Glynn County, Georgia from Jekyll Is and to East Basin adjacent to Glynn Ave. (U.S. 17) in Brunswick

Number of pages including cover sheet: 13

☐ For Review ☐ For your File ☐ Please Call ☒ Please Handle
Original Will ☐ Will Not ☐ Follow

Message:

Please give Mr. Wainright a call after you have reviewed the attached proposed letter regarding the marsh restoration project.

Thank you for your assistance with this project.

IF THIS FACSIMILE IS INCOMPLETE OR ILLEGIBLE, PLEASE CALL OUR OFFICE.

R. GARY WAINRIGHT

ATTORNEY AND COUNSELOR AT LAW

MAIL:
P.O. BOX 20092
31522-8092

296 REDFERN VILLAGE

ST. SIMONS ISLAND, GEORGIA 31522-2501

(912) 638-5536

FACSIMILE NUMBER:
(912) 634-1040
EMAIL ADDRESS:
gary@wainrightlaw.com

June 22, 2004

Mr. T. Alan Garrett
Project Manager, Brunswick Harbor Deepening Project
U.S. Army Corps of Engineers, Savannah District
100 West Oglethorpe Avenue
PO Box 889
Savannah, GA 31402-0889

RE: Moving marsh restoration project in Glynn County, Georgia from Jekyll Island to East Basin adjacent to Glynn Ave. (U.S. 17) in Brunswick

Dear Alan:

As you know, I submitted a statement expressing my objections to the U.S. Army Corps of Engineers' Jekyll Island marsh restoration project, together with an alternate proposal, by e-mail addressed to "james.s.calver@sas02.usace.army.mil" prior to the expiration on May 31, 2004, of the period for commenting on the "Proposed Modification of the Wetland Mitigation Plan" contained in the Draft Environmental Assessment and Finding of No Significant Impact for the Brunswick Harbor Deepening Project, Glynn County, Georgia, dated April 2004. Since then you and I have had a number of conversations about this matter.

I now wish to submit the following formal proposal of an alternative solution to the marsh mitigation project planned for Jekyll Island, Glynn County, Georgia in connection with the Brunswick Harbor Deepening Project that I believe could involve a cost savings of as much as $4 million or more.

As planned, the Jekyll Island mitigation project is projected to cost $4.7 million. I believe that the local share of the project is 35 percent, which is being paid by the Georgia Ports Authority and/or the State of Georgia. My proposal involves abandoning the Jekyll mitigation project entirely and pumping some of the dredged material from an 18-acre barge turning basin that is being excavated from marsh adjacent to the East River in Brunswick to the East Bay, a tidal basin east of Glynn Ave./U.S. 17 and south of the F.J. Torras Causeway. I understand that marsh creation projects similar to the one I am proposing generally cost $500,000 or less, depending on size and other factors. The feasibility of this approach was never considered in the Draft Environmental Assessment.

However, this is much more than the typical marsh creation or restoration project. It involves the re-creation of Dart's Creek, which is at the heart of the famous Marshes of Glynn, and the restoration of the surrounding salt marshes. These marshes are a very special place, whose beauty was extolled in a marvelous poem published in 1878 by Sidney Lanier, a Georgia native who fought in the American Civil War, played an important role in helping to reconcile a bitterly divided nation near the end of the Reconstruction Era after the war and achieved success as a musician, poet and university professor. Lanier was a great American, who deserves a fitting memorial in his home state.

Consequently, the project that I propose also involves the creation of a national monument or state park on land adjacent to the re-created and restored marshes. There would be no acquisition cost for this property because it is already owned by the City of Brunswick and is used as a local park. It should be redeveloped into a fitting memorial to Lanier and the poem and place called "The Marshes of Glynn." If you will bear with me, I will attempt to explain, not only how it is feasible to re-create Dart's Creek and rehabilitate the surrounding marsh, but also why it is vital for the entire integrated project to be completed.

Moving Marsh Restoration Project to Marshes of Glynn

The Problem

According to the "Proposed Modification of the Wetland Mitigation Plan" dated April 2004, the Corps of Engineers is planning a "marsh restoration" project for the southwest side of Jekyll Island that will involve scraping approximately 2.5 feet of mud and topsoil from 59 acres of "high" marsh there in order to convert it into more productive "low" marsh. This project is being undertaken as a means of mitigating the effects of destroying some 18 acres of low marsh west of Brunswick in order to dig the new East River barge turning basin. It seems strange that the Corps is planning to disrupt a functioning salt marsh ecosystem in order to make up for destroying another segment of marsh. In a way, it brings to mind the U.S. military officer from the Vietnam era who, commenting on the destruction of a Vietnamese village, said that in order to save the village, it was necessary to destroy it.

To compound the problem, the Corps is now proposing to offload in the ocean east of Jekyll Island up to 420,000 cubic yards of marsh silt that will be scraped from the Jekyll high marsh. To do so, it will need to dig a 1,350-foot barge canal that will be 14 feet deep and 60 feet wide, requiring approximately 90,000 cubic yards of additional excavation. In all, the Corps is proposing to deposit over a half million cubic yards of excavated and dredged material offshore. If it is unable to obtain the necessary regulatory approval from EPA, it will have to truck the material to a mainland disposal site. Of course, a considerable portion of the silt created from dumping all of this in the ocean will probably find its way onto the beaches and into the waterways of the Golden Isles, as usually occurs when the Corps dredges in the harbor and rivers and deposits the spoil offshore. It certainly will not have a salutary effect on the marine life in the area.

The original cost of the Jekyll marsh mitigation project was $4.7 million, and the amount of marshland affected was only 45 acres. The acreage was later increased to 59, and yet, to my knowledge, the cost of the project was not increased proportionately. One cannot help wondering how this is possible.

The Corps presumably has a disposal problem of similar magnitude to the Jekyll mitigation project with respect to the mud that it digs out of the marsh adjacent to the East River (although the area involved is only 18 acres, it will have to be dug far deeper in order to create a turning basin for barges). I understand that this will be deposited on the Brunswick Harbor dredge spoil site on Andrews Island west of Brunswick.

A Proposed Solution

I would like to suggest an alternative and, I believe, better solution to the problem. I propose that the Corps abandon the Jekyll Island marsh restoration project entirely and substitute a marsh creation project centered on an area of unsightly mud flats known as the East Basin, which is located just east of the Lanier Shopping Center on Glynn Avenue (U.S. 17) in Brunswick. A portion of the material excavated from the marshes adjacent to the East River would then be re-directed from Andrews Island to the East Basin.

This East Basin was created when fill was dug from that location in order to widen Glynn Avenue and extend it from Gloucester Street to the Brunswick River when the original Sidney Lanier Bridge was being built in the mid-1950s. After being widened and extended, Glynn Avenue became part of U.S. 17. Immediately after the East Basin was dredged, it was deep enough to be used for skiing and other forms of recreational power boating. However, during the decades since that time, it has silted up and has been essentially useless for any kind of power boating for many years.

The area dredged to create the East Basin consisted of about 35 to 40 acres of beautiful, green salt marshes with a tidal waterway meandering through them known as "Dart's Creek" (after Urbanus Dart, one of Brunswick's most prominent early citizens). They were at the heart of the magnificent salt marshes whose pristine beauty was extolled by Sidney Lanier in his glorious poem, "The Marshes of Glynn" (for those who have never read the poem, it may be found at the following link: http://www.bartleby.com/42/809.html). Before Dart's Creek was dredged, it flowed immediately next to "Lanier's Oak," under which local legend says Lanier sat for many hours contemplating the majesty of the marshes and drawing inspiration for his poem. The tree is now located in the median of U.S. 17.

The marshes in and around Dart's Creek were destroyed because of a Federal highway project. How fitting and enlightened it would be if the Corps were now to abandon the Jekyll project, use what it digs from the marshes

next to the East River to re-create the site of Dart's Creek and restore the Marshes of Glynn to at least a semblance of their former glory.

The proposed East Basin location should be a good fit with the new turning basin. In a marsh "creation" project, the Corps usually tries to create twice as much marsh as it destroys, and the mud flats east of Brunswick are almost exactly twice the 18 acres that will be destroyed by the proposed turning basin. Marsh "restoration" projects, like the one on Jekyll Island, on the other hand, require a larger ratio (since marsh is only being upgraded, rather than created), which is why the Jekyll project involves 59 acres, rather than 36 or so.

As previously indicated, it is my understanding, on the basis of conversations that I have had with you, that the total cost of the Jekyll Marsh Restoration Project is approximately $4.7 million. From what I have seen on the Web, these type of marsh creation projects typically cost $500,000 or less, with some having a price tag of less than $250,000, depending on size and other factors. Thus, substantial savings could be realized by eliminating the Jekyll project entirely and using some of the dredged material from the new East River turning basin to fill the old silted-in East Basin.

As you have explained during one of our earlier conversations, the reason such a project would be so much cheaper than the project as planned is that the material from the East River dredge site could be pumped directly to the East Basin and therefore would not have to be barged or hauled anywhere. In the typical marsh creation project, the Corps builds a temporary or permanent levee that serves as a retaining wall and then pumps the material to the new location from the dredge site. When the fill material reaches the level of the surrounding marsh, the *Spartina alterniflora* grass in the adjacent marsh will, in time, propagate the site naturally. Nevertheless, in most restoration projects, it is sprigged or seeded in order to reduce the time required for full coverage.

In its "Proposed Modification of the Wetland Mitigation Plan," the Corps states in section 2.2 on page 1: "Alternatives are evaluated, and the least environmentally damaging alternatives are identified." However, the alternative I am submitting was not included among the alternatives considered. Since no cost/benefit analysis or comparison with other alternatives was performed on the site I am proposing, there is no way that the alternative selected can be definitively determined to be the least environmentally damaging one. This is especially true since the alternative I am proposing does not involve any excavation of marsh other than the new turning basin itself.

Moreover, the site of the Jekyll mitigation project, which is on the southwestern tip of the island adjacent to St. Andrews Sound, is not even in the same drainage basin as the East River, where 18 acres of marsh will be lost. It is actually in the drainage basin of the Satilla River and Little Satilla River to the south of Brunswick, which empty into St. Andrews Sound. It seems only logical that if one is going to try to mitigate the damage caused by destruction of salt marshes, the mitigation efforts should be performed in the same drainage basin.

Of course, I realize that the Corps will want to know that all of the governmental, environmental, civic and other affected constituencies are in favor of shifting the project or at least have no objections to the change. I have presented my proposal to the Brunswick City Commission, which authorized Mayor Brown to send you a letter asking you to consider this alternative. By copy of this letter, I am informing President Bush, Governor Perdue, our federal and state legislators, Brunswick and Glynn County officials, environmental and port officials and various environmental organizations of this proposal and invite them to contact you to express interest in and support for this project.[1]

I would prefer to see the marsh creation project completed using a temporary levee that would be removed afterwards. However, it will be necessary to ensure that deep-water access continues to be afforded to tenants of the City of Brunswick, which owns the high ground where Spanky's Restaurant, Southeast Adventure Outfitters and the

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[1] I have no political or personal influence with President Bush, Governor Perdue or any of the other public officials listed at the conclusion of this letter and normally would not have sent a copy to many of them, particularly those who do not reside here. However, this is a matter that involves the potential for a substantial monetary savings, and I feel that, under the circumstances, officials connected with the federal and state budgetary processes should be furnished a copy as a courtesy. Of course, because of the recent G-8 Summit held here, this area has been in the national spotlight and has come in a very direct and personal way to President Bush's and Governor Perdue's attention through their presence here. Hopefully, they or members of their respective staffs, remembering their recent visits to our community, will decide to take a personal interest in this proposal and facilitate its realization.

adjoining land, buildings and marina are located just off Glynn Avenue/U.S. 17. Of course, Spanky's and the marina are very visible in the aerial photos in the MOG.zip file that you have.[2] Hopefully, if a temporary levee is not possible, the project could be designed with a permanent levee that would separate the fill location from the area around the marina.

I have spoken with Ken Tollison, who is a former mayor and city commissioner of Brunswick and a member of the group of investors who lease the marina and related buildings from the City. He has authorized me to say that his group would welcome any action by the Corps that would enhance the recreational potential of the marina and surrounding area, including new opportunities for activities related to eco-tourism, provided, of course, that access by users of the marina to deep water is maintained and his subtenants' businesses are not materially disrupted. I have also been in touch with various environmental groups to ascertain their concerns.

Unfortunately, it will not be possible to re-create Dart's Creek and the surrounding marsh exactly as they originally were. This will undoubtedly be one of those cases where "All the kings horses and all the kings men couldn't put Humpty Dumpty together again." Some parts of the creek used to flow where the northbound land of Glynn Ave./U.S. 17 is located today. Moreover, Overlook Park was built over part of the creek. The restored Dart's Creek will therefore have to be narrowed somewhat from east to west in order for it to fit in the available space. The planners will encounter many other problems that will make a perfect restoration impossible or impracticable. It will be necessary not to set unachievable goals, given the fact that Glynn Ave. and U.S. 17 are here to stay and cannot be moved.

Nevertheless, even within these constraints, there is a great deal that can be accomplished. It is doubtful that many people will even notice that the new Dart's Creek is not a carbon copy of its old self. Moreover, as a meandering tidal creek, the original Dart's Creek would probably be in a somewhat different location today, anyway. It would also have continued to meander in the future. Thus, it is not necessary for Dart's Creek to be perfect. If the final product is a reasonable facsimile of what existed in Lanier's day, that will be a wonderful thing, indeed!

I also recognize that considerable planning is required for a marsh creation project and that this proposal may be a non-starter if it will result in additional significant delay in the Brunswick Harbor Deepening Project. Presumably, some study of the hydrology and geology of the marshes will be required, including tidal flow rates, volumes, elevations and ranges, duration of inundation, salinity, pH and other water chemistry, temperature, turbidity, site morphology, surface elevations, mud composition, other substrate conditions, water table levels, *etc.* Nevertheless, I would hope that any data collection needed would not have to continue for an extended period of time and

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[2] As you know, because of its large size (about 49 MB), I was unable to e-mail the MOG.zip file to you and had to upload it to the Corps's FTP site. It is my understanding that any interested party may download it from there without permission and at no charge by navigating to the Upload directory at (ftp://ftp.usace.army.mil/Upload/) and then browsing to the SAS/Brunswick Harbor subdirectory. After the files have been expanded with WinZip, PKZip or a similar compression/decompression program, they can be viewed with any graphics viewing program that supports the JPG or JPEG format. There is a description in the properties for each file that will help you identify the contents of that picture.

The first group of files (Bwk_1896.JPG, Bwk_1908.JPG, Bwk_1910.JPG, Bwk_1918.JPG and Bwk_1931) are historical charts and maps from the Brunswick Water & Sewer Engineering Dept. They let me use my digital camera and tripod to digitize them. There may be a little optical distortion since they were not scanned, but they are good enough to convey the general idea. These are my original JPGs. I have TIFs if you want them, but they are much bigger.

The second group (MOG_01.JPG through MOG_15.JPG) are photos of the area of the Glynn Avenue mud flats from various angles. MOG_01.JPG was taken from the top of the northwest tower of the Lanier Bridge and shows the East Bay mud flats at low tide. As you can see, there was very little water in the bay at that time, and it looks positively dreadful. On the other hand, all of the aerial photos (MOG_02.JPG through MOG_15.JPG) show the area at high tide and are therefore quite misleading. The flats look about as good as they possibly can in those photos. For most of each day's tidal regime, a lot of mud is visible. MOG_16.JPG and MOG_17.JPG are close-up pictures of the flats I took at low tide last year.

FYI, MOG_18.JPG, MOG_19.JPG and MOG_20.JPG are photos downloaded from the state's "Disappearing Georgia" collection. Finally, MOG_21.JPG and MOG_22.JPG are pictures of the Marshes of Glynn that I took last year from the top of the northwest tower of the Sidney Lanier Bridge and the Back River Bridge, respectively. I never get tired of looking at them, not because I took the pictures, but because I find the subject matter so beautiful and fascinating.

that any flow rates and other required data can be taken at various locations in the marsh during the spring and neap-tide maxima and minima and intermediate stages within one or two lunar tidal cycles.

Hopefully, extensive modeling will not be necessary before the dredge material can be pumped to Dart's Creek. I presume that any modeling of the area in and around the East Basin that *is* required prior to dredging of the barge turning basin will have to be commenced and completed ASAP to avoid delaying the dredging. If detailed and lengthy mathematical or physical modeling is necessary, that would obviously be a very serious problem. However, since the Corps will be restoring a previously existing tidal creek and area of marsh, perhaps any fears that this will severely disrupt the functioning of other tidal bodies will be at a minimum.

There should be sufficient funds in the original budget to accomplish whatever modeling may be required for the alternative I have proposed since the monetary savings from being able to pump, rather than barge or haul, the material should be quite large. Of course, if modeling is necessary in order to determine whether the project is feasible, then it has to be done in advance of pumping. However, to the extent modeling is not required to decide whether to proceed, maybe some or all of it can be done after pumping begins. For example, if modeling is needed in order to determine what "corrective measures" or "fine tuning" might be necessary to reduce turbidity and balance tidal volumes and flow rates through the various waterways affected, perhaps it would not have to be completed until after the East Basin is filled. Moreover, I believe you indicated that it may be possible to compress to some degree the normal notice and planning requirements for new mitigation projects since this project has already been in the planning stages for so long.

I doubt very much that any meaningful study was done when the basin and canal connecting it with the Brunswick River were dredged in the mid-1950s. It would appear that water entering the marshes from the Brunswick River, lower Back River and Terry Creek have some sort of canceling effect that causes them to drop a major part of their silt burden in the area of the East Basin and the marina. Hopefully, filling the basin, cutting off the canal that presently connects it with Terry Creek, filling part of the canal south of Spanky's and the marina (if a decision is, in fact, made to do that) and restoring the normal working of Plantation Creek and the various minor creeks that were closed off with dredge spoil some 60 or so years ago will have the effect of eliminating some of the silt that presently flows into the area around the marina and settles there.

Of course, there may be contamination in the East Bay mud flats due to the fact that it communicates with the old Terry Creek toxaphene outflow and spill site through a canal that was dug to connect Terry Creek and the flats. The canal is easily discernible in several of the aerial photos in the MOG.zip file. If it is closed and the mud flats are covered with silt from the East River, this might go a long way toward preventing further contamination of the Marshes of Glynn.

Most, if not all, of the hammocks that line the east coast of Brunswick also are not natural. From what I can tell from comparing old maps with modern ones and aerial photos, most of them seem to be located on the sites of old creeks. Some of the spoil dredged from the East Basin, the Terry Creek-to-East Basin connecting canal and the Spanky's-to-Brunswick River canal seems to have been pumped or otherwise conveyed to those locations in order to close the creeks. It will not be possible to restore the flow of some of these creeks unless the supervening hammocks are removed. This would require some vegetation on the hammocks to be cut down and some of the sand and mud to be dredged away in order to restore the marsh in those locations.

There might be a problem with this since they do provide some habitat for herons, egrets and various other species of birds, and environmental groups might object to their removal. Before they are altered, it would be important to ascertain how much usage marsh waterfowl and small mammals make of them. Perhaps other steps could be taken to mitigate the effects of losing some of this habitat, such as creating or enlarging hammocks in other locations (such as the "bird island" you are creating in the sound northwest of Jekyll Island). The hammocks presumably would also provide some degree of protection for Brunswick in the event of a large storm surge during a hurricane. Nevertheless, they do detract rather seriously from the open "sweep" of the Marshes of Glynn observed by Lanier, and I would not personally object if the Corps wanted to remove all or part of <u>some</u> of them (particularly the one directly in front of Overlook Park), as long as appropriate steps are taken to mitigate the loss of habitat and there are no other major objections that would delay the project.

In addition to the "mud flats" being quite shallow (which will reduce the amount of fill that will have to be pumped), I am told that the area around the marina is also extremely shallow from nearly 50 years' accumulation of

silt. If a small amount of maintenance dredging could be done in a limited area around the marina in order to make it possible for small boats to get in and out, I am sure the city and its tenants would not object, and this might help to make the project politically acceptable for everyone concerned. This would be especially desirable if the canal connecting it with the Brunswick River is also filled in order to create new marsh and restore the area to its original configuration. In fact, if the material derived from such dredging is pumped into the East Bay fill site, it would reduce the amount of material that would have to be pumped from the East River dredging site.

If all of this could be accomplished without further delaying the digging of the barge turning basin, it seems to me that saving approximately $4 million would not be too shabby a dividend to derive from restructuring the project.

Lack of a Proper Memorial to Lanier and "The Marshes of Glynn"

I have discussed with Mayor Brad Brown of the City of Brunswick, Heather Heath of the Golden Isles Arts and Humanities Association ("GIAHA") and various other local citizens and federal, state and local officials the lamentable failure of our local citizens and local and state governments to have a proper memorial created in memory of Sidney Lanier and his most famous poem "The Marshes of Glynn" and positioned in Overlook Park or another location adjacent to the actual Marshes of Glynn depicted in the poem.[3] In my opinion, the original publication of "The Marshes of Glynn" in 1878 was one of the greatest cultural events in the history of Brunswick and Glynn County. It is a shame that Lanier and his legacy to this area have been largely ignored for so long and that so many environmental insults have been heaped upon his marshes.

Of course, we have the new Sidney Lanier Bridge, and it certainly is a splendid structure. However, as great a tribute as the bridge undoubtedly is, if you are familiar with Lanier's poetry, you may recall that he practically railed against what he called "trade" in several of his poems (*e.g.*, see "The Symphony"[4]). I am sure that he would have much preferred to be remembered through his poetry and memorialized as part of a project that also honors the marshes and his most famous poem, "The Marshes of Glynn."

As mentioned above, I have also discussed with a number of local, state and federal officials and private citizens the possibility that the National Park Service might consider designating Overlook Park (the site of the proposed statue) and the newly re-created marsh as a national monument (possibly under the aegis of and managed by Fort Frederica, the City of Brunswick or the State of Georgia). I believe this would be appropriate for several reasons: *(i)* the historical significance of the site as the subject matter for Lanier's famous poem; *(ii)* Lanier's own place in history due to his many artistic and intellectual accomplishments and his national prominence during the latter stages of his life (he was, among other things, invited to write a poem entitled "The Centennial Cantata: The Centennial Meditation of Columbia"[5] that was performed with orchestral accompaniment and sung by a choir at the

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[3] There is an existing study created in the 1970s by the well-known sculptor Russell Fiori (now deceased) for a statue of Lanier that is in the possession of the Jekyll Island Authority. I suppose this is a minor point, but my only reservation about using it as the basis for an actual statue is that it depicts Lanier seated on a tree stump. Of course, Lanier was a very great lover of trees, and "The Marshes of Glynn" starts out with his beautiful imagery of "Glooms of the live-oaks, beautiful-braided and woven/ With intricate shades of the vines that myriad-cloven/ Clamber the forks of the multiform boughs...."

The poem is almost as much a paean to the spirits of the live oaks and Spanish moss of the maritime forests as it is a hymn of thanksgiving for the marshes. Thus, I am not sure that having Lanier seated on a tree stump would create exactly the right "feel" for the statue. On the other hand, perhaps no one but a student of Lanier and "Lanier purist" like myself would see the irony of positioning him on a stump. Personally, I would much prefer for him to be rendered seated or reclining against a living tree. It wouldn't be necessary to depict the whole tree; part of the trunk would do, and the rest could be left to the imagination.

[4] See also footnote 13.

[5] According to an early biographer of Lanier, Edward Mims:

> The most important thing, however, about the writing of the Cantata was that it gave expression to a strong faith in the nation as felt by one who had been a Confederate soldier. The central note of the poem is the preservation of the Union. In spite of all the physical obstacles that had hindered the early settlers, in spite of the distinct individualities of the various people of the sections, in spite of sectional misunderstandings which had led in the process of time to a bloody civil war, the nation had survived. All of these had said, "No, thou shalt not be" [, to which Columbia responded:]

opening exercises of the national centennial exposition in Philadelphia in 1876 and also authored a much longer poem shortly afterwards with the same theme of national reconciliation entitled "The Psalm of the West");[6] *(iii)* the natural beauty of the restored marshes and *(iv)* the federal (and state) funds expended in re-creating Dart's Creek and restoring the Marshes of Glynn to a reasonable facsimile of their former appearance. In fact, designation of the area of the restoration project as a national monument would preserve it for all time against any future assaults upon its integrity. The Marshes of Glynn and Overlook Park could become Brunswick's "Central Park" that we preserve for future generations to enjoy. Alternatively, perhaps it could be designated as a state park with recorded covenants that preclude further development that is inconsistent with the goal of preserving it for future generations.

Perhaps the federal government and the Ports Authority/State of Georgia could help with the cost of converting Overlook Park and the new Dart's Creek into a Lanier/Marshes of Glynn national monument (or some lesser designation). The expense should be fairly minimal in comparison with the $4 million in potential savings noted above since the City of Brunswick already owns Overlook Park and, I believe, the area on which the East Bay is located. Little would be required in the way of hard costs besides landscaping. The cost of a life-sized statue of Lanier could be raised through private donations and a public fund-raising campaign.[7]

It would also be wonderful if the Park Service or State of Georgia could help with the funding needed to create a "talking exhibit" at Overlook Park like the one at the Bloody Marsh on St. Simons Island, where one could push a button and hear "The Marshes of Glynn" (or at least excerpts from it) recited. Perhaps portions of several

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Now praise to God's oft-granted grace,
Now praise to man's undaunted face,
Despite the land, despite the sea,
I was: I am: and I shall be.

However, not wanting to commit the sin of unbridled chauvinism, Lanier injected a note of principled restraint by having Columbia address the following question to the attending "Good Angel":

How long, Good Angel, O how long?
Sing me from Heaven a man's own song!

And the angel responded with the following conditional prophecy, which is as apt and deeply moving a description of the quintessential American psyche and mindset today as it was then:

Long as thine Art shall love true love,
Long as thy Science truth shall know,
Long as thine Eagle harms no Dove,
Long as thy Law by law shall grow,
Long as thy God is God above,
Thy Brother every man below,
So long, dear Land of all my love,
Thy name shall shine, thy fame shall glow!

[6] Lanier was in the forefront of a movement toward national reconciliation during the Reconstruction Era in the South. As the foregoing quotation shows, he deeply loved the United States of America, despite being a former Confederate soldier. According to his biographer Mims:

> It was in this spirit and to voice the better sentiment of the South, that Lanier eagerly responded to the invitation to write the Centennial poems. He had fought with valor in the Confederate armies, hoping to the last that they would be victorious. He had suffered all the poverty and humiliation of reconstruction days, but he had risen out of sectionalism into nationalism. It is a striking fact that the two poets who are the least sectional of all American poets -- for even Lowell never saw Southern life and Southern problems from a national point of view -- were Walt Whitman and Lanier, the only two poets of first importance who took part in the Civil War. It is also significant, that in Lanier's "Psalm of the West" we have a Southerner chanting the glory of freedom, without any chance of having the slavery of a race to make the boast a paradox.

Thus, it was Lanier and like-minded southerners, such as Senator L.Q.C. Lamar of Mississippi, Senator J.T. Morgan of Alabama and Atlanta newspaper publisher Henry Grady, and compassionate northerners like James Russell Lowell, Walt Whitman and Horace Greeley, who helped to "bind up the nation's wounds" (as Lincoln had urged the nation to do in his Second Inaugural Address) and put the country back on a course toward national reconciliation.

[7] Incidentally, if the National Park Service can successfully sponsor a project to erect a statue of Lincoln, the "Great Emancipator," in the capital of the Confederacy, Richmond, Virginia (as it did, in fact, do several years ago), the prospects for raising the funds for a statue of Lanier in his home state of Georgia should be excellent!

other thematically related poems like "Sunrise," "The Harlequin of Dreams," "The Symphony" could be recited as well (played by means of an array of buttons in a selection panel).

Unfortunately, there is no place on the eastern shore of Brunswick where it is presently possible to experience what Lanier must have seen as he drew inspiration for "The Marshes of Glynn". The reason is that the live oaks of the mainland are almost entirely separated from the marshes by Glynn Avenue (U.S. 17) and its four lanes of traffic. In Lanier's day, this was not the case because Glynn Avenue and U.S. 17 did not exist. The main north/south road was on the other side of Brunswick. For more than a third of the poem, the narrator (Lanier) communes with nature within a grove of live oaks somewhere on the eastern edge of the town. He passes the time during the heat of the summer day absorbing the dark atmosphere of the maritime forest:

> O braided dusks of the oak and woven shades of the vine,
> While the riotous noon-day sun of the June-day long did shine
> Ye held me fast in your heart and I held you fast in mine....

Later, the narrator steps out onto what he calls the "sand-beach" and notices how it winds its way to both horizons:

> Sinuous southward and sinuous northward, the shimmering band
> Of the sand-beach fastens the fringe of the marsh to the folds of the land.
> Inward and outward, to northward and southward, the beach-lines linger and curl
> As a silver-wrought garment that clings to and follows the firm sweet limbs of a girl.
> Vanishing and swerving, evermore curving again into sight,
> Softly the sand-beach wavers away to a dim gray looping of light.[#]

He then is struck by the expansiveness of the green plains of marsh grass that open before him:

> And what if behind me to westward the wall of the woods stands high?
> The world lies east : how ample the marsh and the sea and the sky!
> A league and a league of marsh-grass, waist-high, broad in the blade,
> Green, and all of a height, and unflecked with a light or a shade,
> Stretch leisurely off, in a pleasant plain,
> To the terminal blue of the main.

As part of such a project, it would be very important to capture for visitors the contrast that must have existed in Lanier's day between the closed-in and dark live oak forest and the openness and light of the salt marsh. The landscaping required in Overlook Park would mainly consist of planting live oaks and other plants indigenous to the area or that had already been introduced from other regions in Lanier's day. The entire area could be screened

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[#] For the most part, this "sand-beach," as Lanier called it, does not seem to exist today at the north-south marsh/upland boundary on the eastern side of Brunswick. However, his descriptions are far too vivid to ignore and clearly were meant to depict a very obvious and widespread feature of the landscape. It is hard to say precisely what it was to which Lanier was referring. Nevertheless, it is possible to make an educated guess.

The south end of the Brunswick Peninsula mirrors the south end of St. Simons Island to a remarkable degree because thousands of years ago it was itself a barrier island with a sandy beach on its eastern side. Thus, Lanier's "sand-beach" was quite likely the modern-day remnants of the old Princess Anne shoreline, which formed some 80,000 years B.P. and is generally considered to have lasted until about 40,000 B.P. At that time, a drop in sea level occurred that led to the creation of the Silver Bluff shoreline, where the Pleistocene cores of the present barrier islands are located. Of course, it also could have been banks of oyster shells, an extensive and nearly continuous series of saltpans, a combination of the three or something entirely different.

My guess is that in Lanier's day there was a more-or-less gradually sloping incline at the marsh-upland boundary that marked the location of the ancient Princess Ann beach and that it was bracketed at its upper levels by at least some relict dunes and at its lower levels by an extensive series of saltpans running in a north-south direction. Today, this has been largely destroyed by the paving of Glynn Avenue/U.S. 17 in several stages during the early and mid-20th century and by other "terra forming" activities involved in the construction of buildings and other roads. As a result, there is a rather substantial drop-off today from the roadway to the level of the adjacent marsh in most areas. Hopefully, locations exist between Brunswick and Darien where remnants of the old Princess Ann shoreline are still evident and resemble, at least to some degree, a sandy beach. However, whatever Lanier's "sand-beach" was, it will be important for something that closely resembles what he observed to be re-created at the edge of the restored marsh.

from Glynn Avenue/U.S. 17 by means of a dense planting of cedars and shrubs. A trail could then be created that winds through the woods to the edge of the marsh, where the statue and speaking exhibit would be placed.

However, it will also be important to plant other live oaks at the edge of the marsh along Glynn Avenue/U.S. 17 and the approaches to the Torras Causeway. Suitably placed and maintained, they will help to screen out power lines and poles, tall signs and the upper stories of buildings on the coast; yet, when mature, they will still permit motorists and pedestrians to see wide marsh vistas framed between the trunks of the trees.[9] An understory of indigenous halophytic shrubs, glassworts and other salt-tolerant plant species should be established between the trees and the marsh to help screen vehicles and pedestrians from the view of kayakers in the marsh. If a proper gradient is established between the high marsh and marsh/forest transition zone, this should help to re-create a saltpan that resembles to some degree the nearly continuous "sand-beach" observed by Lanier.

To facilitate enjoyment of the marshes by bicyclers and pedestrians, I believe there should be a bicycle path/promenade between the roadway and the trees. When connected with the bicycle paths on the causeway, this will make it possible to bicycle or jog safely from St. Simons to Overlook Park (and hopefully beyond). A talented landscape architect or landscape architectural firm with a background in restoration ecology probably should be employed to plan this urban parkway. I believe that it would also be advisable for a special zoning district to be created to set architectural standards for commercial structures and private residences along the "strand."

Of course, I realize that bicycle paths and sidewalks are outside the scope of your agency's statutory authority for marshland restoration projects. However, regardless of the source of funding for the "non-Corps" aspects of the overall project, coordinated planning will be required. If steps along these lines are taken, I am confident they will pay very handsome long-term dividends, not only for Brunswick and Glynn County, but also for the Corps because this project has the potential to be a "poster child" for marsh creation and restoration projects throughout the southeast and perhaps the nation.

Of course, what I have described would not be a short-term project as far as the elements that are not directly connected with marsh restoration are concerned. It would take many years, even decades, for much of the landscaping to mature and achieve its final form. Nevertheless, if we design with nature, rather than against it, I believe that future generations of citizens of Brunswick and Glynn County will find that the results are well worth the wait.[10]

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[9] Some might object that this will destroy the unimpeded view that motorists now have of the marsh from Glynn Ave./U.S. 17. However, I believe it will make the drive much more interesting, provided the area under the branches of the trees is kept relatively unobstructed and occasional gaps are left in the tree line.

[10] I am reminded of a passage in an essay I read many years ago that was written by the eminent microbiologist René Dubos as an adaptation of the acceptance speech he delivered at the time of his receipt of the Tyler Ecology Award in 1976 (incidentally, the $150,000 prize awarded him was larger than the monetary award associated with a Nobel Prize at the time):

> [T]he ecological characteristics of an environment are determined not only by geographic and climatic factors but also by sociocultural imperatives. In addition, the genius of the place is profoundly affected by purely cultural values, as is illustrated by the great English parks created in the 18th century.
>
> The English landscape architects transformed the humanized land of East Anglia by taking their inspiration from bucolic but imaginary landscapes painted by Claude Lorrain, Nicholas Poussin, and Salvatore Rosa. They obviously did not believe that "nature knows best," but instead tried to improve on it by rearranging its elements. They diminated vegetation from certain areas and planted trees in others; they drained marshes and channeled the water into artificial streams and lakes; they organized the scenery to create both intimate atmospheres and distant perspectives. In other words, they invented a new kind of English landscape based on local ecological conditions but derived from the images provided by painters.
>
> The English parks are now the envy of the world. However, as can be seen from 18th-century illustrations, they were then far less attractive than they are now. The planted trees were puny, the banks of the artificial streams were bare and raw, the masses of vegetation were often trivial, and, in any case, were poorly balanced. The marvelous harmony of scenic and ecologic values that are now so greatly admired did not exist in the 18th century except in the minds of the landscape architects who created the parks. The sceneries composed from the raw materials of the earth acquired their visual majesty and came to fruition only after having matured with time. Their present magnificence symbolizes that human interventions into nature can be creative and indeed can improve on nature, provided that they are based on ecological understanding of natural systems and of their potentialities for evolution as they are transformed into humanized landscapes.

René Dubos, "Symbiosis Between the Earth and Humankind," *Science*, 6 August 1976, 193:459-462, at 460. [*Emphasis added.*]

As I have said, there has been a long history of environmental degradation in the marshes east of Brunswick. A project such as this could help to erase Glynn County's reputation as the location of several major superfund sites and show that this community and the State at large care about the environmental, cultural and historical legacy of this beautiful and historic part of the state.

The creation of a statue and talking exhibit could also help to convert Overlook Park and the newly restored Marshes of Glynn into an ecotourism stopover where people take a day or two to embark from Southeast Adventure Outfitters (which is a small business already located at the City's marina that would need to be protected from economic harm or other loss) and other similar or related businesses for kayaking tours through the marshes and to visit other local sites.

Lanier: The Man and Artist

Sidney Lanier had an amazing resume for a man who suffered profoundly from tuberculosis for his entire adult life and died from that disease when only 39 years old. I have already mentioned his place in American history as a sort of poetic mediator between North and South as the nation began to emerge from the Reconstruction Era. He was a soldier, lawyer, professional musician (as a member of the Peabody Orchestra in Baltimore, Maryland), poet, lecturer, professor of English literature (as a member of the faculty of Johns Hopkins University) and a deeply devoted husband and father. In sum, he was a great American who ought to be properly honored by his country for his many contributions.

Many of Lanier's poems show true artistry, and I do not believe it is any exaggeration to say that several of them, including "The Marshes of Glynn," would not suffer in comparison with any other example of great Anglo-American poetry. He deserves to be commemorated here in his native state for the virtuosity that he displayed in his poetic masterpiece, "The Marshes of Glynn."

This poem is a gift, not only to the people of Glynn County, but also to Georgians and the American people. It is a sublime creation that extols the beauty of the marshlands and helps us all to understand, not just from an ecological perspective, but in a profoundly spiritual sense, why it is important to protect and preserve these beautiful vistas for future generations and, however and whenever we can, restore them to a state that is as close to their original, pristine condition as possible.

The poem can be interpreted on a variety of levels. At perhaps the most simplistic and transparent level, it is a nature poem. However, at a deeper level, it is an allegory about religious freedom.[11] At perhaps an even more profound level, it is a depiction of one man's struggle to achieve inner peace through religious faith.[12] At yet another, it chronicles Lanier's rise from difficult financial circumstances during the decade following the Civil War[13]

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[11] Lanier believed in God and was a devout Christian. However, during his adult life, he slipped away from the religious formalism of his Presbyterian roots to a very private, yet still firmly held faith:

> Tolerant plains, that suffer the sea and the rains and the sun,
> Ye spread and span like the catholic [*sic*] man who hath mightily won
> God out knowledge, good out of infinite pain
> And sight out of blindness and purity out of a stain.

Note that the word *catholic* is spelled with a lower-case "c". It does not refer to the Catholic denomination but, rather, is intended to have the broader connotation of "non-denominational, universal, liberal and *not* dogmatic, narrow-minded or partial."

[12] See footnote 11.

[13] Lanier was born into a moderately well-to-do, non-slave-owning family (his father was a fairly successful lawyer). He graduated from Oglethorpe University (in Milledgeville, Georgia, the state capital at the time) a year or so before the outbreak of the Civil War. However, like so many southerners, his family's fortunes were reversed by the war. His own ability to make a steady living for his wife and children was also severely compromised by the tuberculosis (consumption) that he contracted in the last year of the war and that remained with him for the rest of his life. His chronic financial difficulties were almost certainly the root source of the frequently repeated, disparaging references in his poems and letters to the predatory trade practices of his day. For example, see "The Symphony." This thread re-surfaces more mildly in "The Marshes of Glynn" in the following lines:

> Ay, now, when my soul all day hath drunken the soul of the oak,
> And my heart is at ease from men, and the worrisome sound of the stroke
> Of the scythe of time and the trowel of trade is low,

to a level of moderate affluence in his later years. Likewise, it is an autobiographical account of the poet's struggle to achieve acceptance among the literary critics of his day and his ultimate confidence that, despite the petty carping of the literati and self-proclaimed cognoscenti, he had finally mastered his craft and achieved a consummate level of artistry.[14] In fact, in "The Marshes of Glynn," Lanier displayed a mature and sure command of a free-flowing and almost conversational style of poetry. He accomplished this by employing a rather unusual (for his day) meter called the logaoedic dactyl, which uses more than one kind of metrical foot within a line.[15] This is what gives the poem its relaxed rhythm and varied structure, a disorderly sort of order, if you will.[16]

Finally, the poem seems to have been a long-term project that Lanier worked on for many years during frequent visits to the Georgia coast before it was finally published in 1878.[17] He may have found some difficulty expressing his thoughts and feelings about the marsh until he "came of age" poetically. Perhaps it was only at this point in his poetic career that he was able to complete the poem and say with confidence "That the length and the breadth and the sweep of the marshes of Glynn /Will work me no fear like the fear they have wrought me of yore...." The Marshes of Glynn, as a place, may therefore have been used by Lanier in the poem as a metaphor for the poem itself.[18]

At any rate, for the discerning reader, the poem invites repeated reading because it reveals new meaning each time it is revisited. The background one brings to the reading of this poem will have a considerable bearing on how it is interpreted. Some would say this is the very essence of great poetry.

Conclusions

The Marshes of Glynn are beautiful in their present state, even with all of the development that has occurred in and around them. One might say that there are other, purer examples of southern salt marshes that may be more deserving of protection. However, those marshes do not have an exquisite 105-line narrative poem written about them. The existence of this poem, written over 125 years ago, makes these marshes unique. The poem is forever tied specifically to this place. However, in a greater sense, it is a poem about the environmental and spiritual values inherent in all salt marshes. In that sense, the Marshes of Glynn are a larger than life metaphor for salt marshes everywhere. It is therefore vital that this potent symbol be restored and protected so that the present generation and all future ones can feel in a direct and powerful way what each age stands to lose by failing to honor its obligation to enhance and preserve for its descendants the inheritance received from its forebears. What a shame it would be if we were to continue to treat these marshes with disrespect, as has all too often been the case in the past!

> And belief overmasters doubt, and I know that I know
> And my spirit is grown to a lordly great compass within,
> That the length and the breadth and the sweep of the Marshes of Glynn
> Will work me no fear like the fear they hath wrought me of yore,
> When length was fatigue, and when breadth was but bitterness sore....

[14] See passage quoted in footnote 13.

[15] The word *logaoedic* means "word (prose) + ode (song)" in Greek, *i.e.*, it is a dignified poem of noble sentiment that resembles a song because its varied meter gives it a lyrical quality. It is called the "logaoedic *dactyl*" meter because the dactyl (one accented syllable followed by two unaccented or one long syllable followed by two short, as in *worrisome*) is usually the predominant metrical foot. Lanier seems to have reversed this and used the anapest (two short syllables followed by one long one, as in the word *seventeen*) as his most common foot (*e.g.*, "And my spirit is grown to a lordly great compass within"). Curiously, although the poem has many three-syllable words that are individually pronounced as dactyls, they often span two metrical feet and therefore are part of an anapest (*e.g.*, "...and when breadth was but *bitterness* sore...").

[16] See passage quoted in footnote 13. In his earlier days, Lanier would have lacked the confidence to try such bold metrical innovation. Lanier discovered this meter during the course of his studies of Anglo-Saxon poetry while at Johns Hopkins University and adapted it to his needs. Unbeknownst to Lanier, the same logaoedic meter was independently being used by the English priest and poet Gerald Manley Hopkins at about the same time, but this was not generally known until after Hopkins' death since his work was not published during his lifetime. Like Lanier, Hopkins was inspired by Old English poetry.

[17] Local remembrance documented by the historian Margaret Davis Cate has it that the poem (or a draft of it) was first publicly read in Brunswick in 1875 at a public gathering in the home of Mrs. J.M. Couper.

[18] See full passage quoted in footnote 13.

As you know, salt marsh has been lost at an alarming rate on all of our coasts over the last 50 years. However, the Atlantic Coast may have lost the most of all since man has been developing and exploiting the east coast of our country for over 400 years, the last 200 years of which have been extremely intensive. The chance to rectify, in some small measure, the centuries of environmental destruction and degradation to which the marshes have been collectively subjected and to create a site where a true sense of reverence for the environment can be instilled in present and future generations of coastal Georgians and visitors to this area should not be allowed to slip away.

Fortunately, there is still something to restore and protect here. Glynn County has for decades been called one of the "best kept secrets on the Atlantic Coast." Being in this relatively quiet backwater has saved this area from some of the more rapacious development seen in other coastal areas. These marshes present an opportunity to show how a moderately degraded marshscape can be reclaimed and protected for posterity.

The Jekyll Island marsh mitigation project makes little sense. It is a dreadful waste of taxpayer money and will cause serious environmental damage, certainly in the short term and possibly long-term. We have a golden opportunity to do something really special here in Glynn County because of the happy coincidence of having this glorious poem, written about a sublimely beautiful place, which just happens to be a nearly perfect site for a marsh restoration project that is already fully funded.

For all of the foregoing reasons, I respectfully urge you and the Corps of Engineers to *(i)* abandon the Jekyll Island marsh restoration project, *(ii)* use a portion of the dredged material from the East River barge turning basin to create new salt marsh out of Brunswick's East Basin and *(iii)* to the extent reasonably possible, restore the Marshes of Glynn to their original appearance and condition.

Thank you for your consideration of this proposal. I would welcome the opportunity to meet here or in Savannah with you and the members of your team to discuss it. I would also be glad to meet with you and any other interested parties. If you have questions, need additional information about any of the matters discussed above or wish to discuss the contents of this letter, please do not hesitate to contact me anytime.

With best regards, I am

Sincerely yours,

R. GARY WAINRIGHT
ATTORNEY & COUNSELOR AT LAW

R. Gary Wainright

RGW/csd

cc: U.S. Pres. George W. Bush
U.S. Sen. Saxby Chambliss
Ga. Sen. Rene Kemp
Ga. Rep. Al Williams
Bwk. Mayor Bradford S. Brown
Bwk. City Com. Jonathan L. Williams
Bwk. City Mgr. Roosevelt Harris, Jr.
Glynn Co. Com. Paul "Howard". Lynn
Glynn Co. Com. Tony Thaw
Ms. Susan Shipman, Ga. D.N.R.
Mr. Mike Tennant, U.S. Park Service
Ms. Heather Heath, Dir., GIAHA
Ms. Deborah Sheppard, Alt. Riverkeeper
Mr. Frank Quinby, Audubon Soc.
Mr. Bryan Thompson, Blueprint Bwk.
Ga. Gov. Sonny Perdue
U.S. Rep. Jack Kingston
Ga. Sen. Eric Johnson
Ga. Rep. Tommy Smith
Bwk. City Com. Doris Davis
Bwk. City Com. Cornell L. Harvey
Glynn Co. Com. Chrmn. Mark Bednar
Glynn Co. Com. Alan Jerome Clark
Glynn Co. Atty. Gary Moore
Mr. Doug Johnson, E.P.A.
Mr. A.W. Jones, III, Sea Island Co.
U.Ga. Marine Institute, Sapelo Island
Mr. David Kyler, Center for Sust. Coast
Mr. Ken Gollin, RUPA
Mr. Ken Tollison, E. Bay Holding Co.
U.S. Sen. Zell Miller
Mr. Bill Dawson, G.P.A.
Ga. Rep. Jerry Keen
Ga. Rep. Hinson Mosley
Bwk. City Com. Mark A. Spaulding
Brunswick City Atty. M. Lynn Frey, III
Glynn Co. Com. V. Chrmn. T.B. Clark
Glynn Co. Com. Cap Fendig
Glynn Co. Adm. Charles Stewart
Mr. Bob Lord, E.P.A.
Mr. Ben T. Slade, III, St. Simons L.T.
Mr. Daniel Parshley, GEC
Ms. Joe Hickson, Georgia Greenway
Ms. Julie V. Mayfield, Ga. Conservancy
Mr. Michael Gowen, SE Adventr. Outfitrs.

CITY of BRUNSWICK

POST OFFICE BOX 550 • BRUNSWICK, GA 31521-0550 • (912) 267-5500 • FAX (912) 267-5549

June 25, 2004

RE: Moving marsh restoration project in Glynn County, Georgia from Jekyll Island to East Basin adjacent to Glynn Ave. (U.S. 17) in Brunswick

Dear Mr. Garrett:

It has come to the attention of the Mayor and City Commission of the City of Brunswick that an alternative has been proposed to the marsh mitigation project planned for Jekyll Island, Glynn County, Georgia in connection with the Brunswick Harbor Deepening Project. Local attorney Gary Wainright has informed the mayor and commissioners at a work session held last Wednesday that he submitted a statement expressing his objections to the U.S. Army Corps of Engineers' Jekyll Island marsh restoration project, together with an alternate proposal, by e-mail addressed to "james.s.culver@ sas02.usace.army.mil" prior to the expiration on May 31, 2004, of the period for commenting on the "Proposed Modification of the Wetland Mitigation Plan" contained in the Draft Environmental Assessment and Finding of No Significant Impact for the Brunswick Harbor Deepening Project, Glynn County, Georgia, dated April 2004.

As planned, the Jekyll Island mitigation project is projected to cost $4.7 million. The local share of the project is 35 percent, which is being paid by the Georgia Ports Authority and/or the State of Georgia. The new proposal involves abandoning the Jekyll mitigation project entirely and pumping some of the dredged material from an 18-acre barge turning basin that is being excavated from marsh adjacent to the East River in Brunswick to the East Bay, a tidal basin east of Glynn Ave./U.S. 17 and south of the F.J. Torras Causeway. We understand that marsh creation projects similar to the one Mr. Wainright is proposing generally cost $500,000 or less, depending on size and other factors. The cost savings could therefore be as much as $4 million. To our knowledge, the feasibility of this approach was never considered in the Draft Environmental Assessment.

Mr. Wainright is also recommending the creation of a national monument or state park to commemorate the famous Georgia-born poet Sidney Lanier and his most famous poem, "The Marshes of Glynn," which extolled the beauty of the marshes east of Brunswick that would be the site of his proposed marsh creation project. Mr. Wainright would like for this national monument or state park to be located on land adjacent to the re-created and restored marshes. There would be no acquisition cost for this property

because it is already owned by the City of Brunswick and is presently used as a local park.

We urge the Corps to investigate this proposal thoroughly to determine whether it would be feasible. The city is currently reviewing proposals for the beautification of the Glynn Avenue/U.S. 17 corridor, and Mr. Wainright's proposal may complement those efforts very well or be a nice adjunct to them. Naturally, the two projects would need to be coordinated to avoid duplication of effort and ensure they blend harmoniously. Please keep us informed of the status of Mr. Wainright's proposal.

Sincerely,

Mayor Bradford S. Brown

GEORGIA
Coastal Resources Division

May 28, 2004

Mr. Steve Calver
USACE Regulatory Branch
P.O. Box 889
Savannah, Georgia 31402-0889

RE: DEA & FONSI for Brunswick Harbor Deepening Project, Glynn County – Proposed Modification of the Wetland Mitigation Plan to Include Deposition of Dredged Material from the Jekyll Creek Mitigation Site in the Brunswick Harbor ODMDS and Notice of Finding of Suitability of Material Dredged from the Jekyll Creek Portion of the AIWW for Transport and Disposal in the Brunswick Harbor ODMDS

Dear Mr. Calver:

Staff of the Coastal Management Program has reviewed your April 30, 2004 Joint Public Notice and accompanying DEA and FONSI for the above referenced project. The proposal includes four action alternatives: Alternative B – Construct Temporary Barge/Dredge Access Canal, Alternative C – Construct Temporary Docking Facility, Alternative D – Transport Excavated Materials to the Brunswick Harbor ODMDS, and Alternative E – Combination of Alternatives B, C and D (tentatively selected alternative).

Under Alternative A – No Action (Section 5.2), the DEA states, "methods used to ensure that the trucks do not spill excavated material onto paved roads would be expensive". What methods are being proposed?

Under Alternative B – Construct Temporary Barge Access Canal (Section 5.3), the DEA states, "approximately 900 feet of the canal would be constructed onto high ground and marsh". Of this 900', how much would be constructed through "low marsh"? The DEA also states, "this will result in replacement of the berm along the bank of Jekyll Creek to original conditions". The elevations on Figure 3 (DEA page 6) are somewhat difficult to read. Is there currently an actual berm or ridge along the bank of Jekyll Creek?

Under Alternative C – Construct Temporary Docking Facility (Section 5.4), the DEA states, "excavated sediments may be stockpiled within the mitigation site prior to transport for disposal". Where is the temporary stockpiling area located? Is it in an area of high marsh that is to be scraped down or is it in low marsh that does not need to be disturbed? Dock Configuration (1) requires excavation of 14,000 cubic yards more than Dock Configuration (2). What are the benefits of using Dock Configuration (1) over Dock Configuration (2)? The barge canal requires excavation of 78,000 cubic yards more than Dock Configuration (2). What are the benefits of

Georgia Department of Natural Resources • Coastal Resources Division
One Conservation Way • Brunswick, Georgia 31520
TEL: (912) 264-7218 • FAX: (912) 262-3143 • WEB: http://crd.dnr.state.ga.us

using the barge canal over Dock Configuration (2)?

The Section 103 Evaluation (at page D-19) states, "dredging, transport, and disposal may occur at any time of the year. Depending on method, dredging could take 30 to 90 days". What specific conditions are in place to protect endangered species when water temperatures are at or above 14 degrees Celsius?

The Federal Consistency Determination (at page G-26) lists O.C.G.A. 50-16-61 General Supervision and Office Assignment (Under the Administrative Procedures Act, Revocable License Program) under Recreational Docks as it is listed in Georgia's Coastal Management Program (GCMP) Document in the Policies and Management Authority chapter under Section I: Georgia Coastal Management Program Policies. This law, however, is not limited only to recreational docks. It is applicable to any use of state-owned tidelands, including dredging and structures over saltmarsh and tidal waterbottoms.

Enforceable Policies specific to structures over tidal waterbottoms are listed in the GCMP document in Uses Subject to Management chapter under Section III: Activities Subject to Management at Subsection E. Marine Related Facilities. Listed policies include the Coastal Marshlands Protection Act, Endangered Wildlife Act, Game and Fish Code, Georgia Boat Safety Act, Georgia Comprehensive Solid Waste Management Act, Georgia Erosion and Sedimentation Act, Georgia Fisheries Law Pertaining to Shellfish (Game and Fish Code), Georgia Water Quality Control Act, Protection of Tidewaters Act, Revocable License Program (Georgia Administrative Procedures Act), Right of Passage Act, Shore Protection Act, and Wildflower Preservation Act. A Revocable License will be required if a temporary docking structure is erected in order to ensure its timely removal. Please feel free to contact Kelie Moore or me to discuss these issues.

Sincerely,

Susan Shipman
Director

SS/km

Enclosure: Revocable License Request

STATE OF GEORGIA
REVOCABLE LICENSE REQUEST

APPLICANTS NAME(S): _____

ADDRESS: _____
(Street) (City) (State) (Zip)

COUNTY: _____ **WATERWAY:** _____ **DATE:** _____

SUSAN SHIPMAN, DIRECTOR
Georgia Department of Natural Resources
Coastal Resources Division
One Conservation Way
Brunswick, Georgia 31520-8687

Dear Ms. Shipman:

I am making application for a permit with the U.S. Department of the Army, Corps of Engineers, Savannah District. I understand that the issuance of such a permit will not relieve me of the obligation to obtain authorization from the State of Georgia since the proposed project would constitute an encroachment on the beds of tidewaters which are State-owned property. Accordingly,I hereby request that I be granted a revocable license from the State of Georgia. Attached hereto and made a part of this request is a copy of the plans and description of the project which will be the subject of such a license.

I understand that if permission from the State is granted, it will be a revocable license and will not constitute a license coupled with an interest. I further acknowledge that such a license would relate only to the property interests of the State and would not obviate the necessity of obtaining any other State license, permit or authorization required by State law.

I recognize that I waive my right of expectation of privacy and I do not have the permission of the State of Georgia to proceed with such project until a copy of this request has been signed by Commissioner Barrett.

Sincerely,

By: _____
(Applicant), title if applicable

By: _____
(Applicant), title if applicable

Attachment

****

The State of Georgia hereby grants you a revocable license not coupled with an interest as provided in your request. This area may now or in the future be utilized by boats employing power drawn nets under the provisions for commercial or sport bait shrimping.

In its occupancy and use of the premises, licensee shall not discriminate against any person on the basis of race, gender, color, national origin, religion, age, or disability. This covenant by licensee may be enforced by termination of this license, by injunction, and by any other remedy available at law to the Department. The project proposed for this license must be completed within 3 years of the date of issuance of the license. Otherwise, action will be initiated to revoke the license.

STATE OF GEORGIA
Office of the Governor

By: _____
For: Lonice C. Barrett
Commissioner-DNR

DATE: _____

Revised October 2002

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702-2432

May 25, 2004

Mr. Steve Calver
Environmental Resources Branch
U.S. Army Corps of Engineers
Savannah District
P.O. Box 889
Savannah, Georgia 31402-0889

Dear Mr. Calver:

This responds to the April 30, 2004, Public Notice and April 29, 2004, letter from Ms. Carol Bernstein concerning the Draft Environmental Assessment and Finding of No Significant Impact (EA/FONSI) for the Brunswick Harbor Deepening Project, Glynn County, Georgia: Proposed Modification of the Wetland Mitigation Plan. The National Marine Fisheries Service (NOAA Fisheries) has reviewed the subject documents and the essential fish habitat (EFH) assessment and we provide the following comments.

NOAA Fisheries generally concurs with the findings and conclusions contained in the EA/FONSI and the EFH assessment. Although we do not agree that impacts associated with excavation of the access channel will be minor, especially in the vicinity of emergent wetlands, we agree with your determination that the impact will be temporary and that the site will recover over time. Considering that a tidal connection between the established marsh and adjacent waters of Jekyll Creek is needed, we request that you consider using the proposed barge access channel to address this need. Additionally, we understand that the Glynn County Mosquito Control Commission maintains mosquito control ditches in portions of the overall project site and it may be advantageous to coordinate with them with regard to restoring and maintaining tidal connectivity to the site.

Although we do not object to the modified plan of action and we commend the Savannah District for its efforts to offset wetland impacts associated with the Brunswick Harbor Deepening Project, we believe that an important opportunity to establish additional wetlands mitigation is being bypassed. More specifically, we note that removal of significant portions of old fill associated with the existing access road to the project site is possible. These previously filled wetlands are largely unusable due to their size and configuration, and they provide only marginal value as wildlife habitat. If converted to regularly flooded saltmarsh a substantial amount of wetland enhancement and potential mitigation credit would be derived. Although NOAA Fisheries is

supportive of the current mitigation plan and does not wish to lengthen or jeopardize initiation of marsh enhancement and restoration, we encourage and we would support a prudent effort to convert a greater portion of filled wetlands on the site to saltmarsh.

Please note that our comments and recommendations are provided in accordance with provisions of the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act. Additional and separate comments may be provided by NOAA Fisheries' Protected Resources Division (PRD) pursuant to the Endangered Species Act of 1973, as amended. If PRD comments and recommendations are not in concert with those that we provide, additional coordination may be necessary. As a general rule, if two sets of recommendations are provided, the recommendations that provide a greater level of environmental protection should be adopted over those that are less protective.

We appreciate the opportunity to provide these comments. Should you need further assistance in this matter, please contact Mr. David Rackley at our Charleston Area Office. He may be reached at 219 Fort Johnson Road, Charleston, South Carolina 29412-9110, or at (843) 762-8574.

Sincerely,

for David H. Rackley

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

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Appendix D

Section 103 Evaluation
:
Jekyll Creek Mitigation Plan and AIWW Channel

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A. Introduction

This is an evaluation of two different proposals to transport and place dredged material in the Brunswick Harbor Ocean Dredged Material Disposal Site (ODMDS). They are related because both proposals involve sediments from Jekyll Creek, Glynn County, Georgia. This is a tidal creek that runs along the back (west) side of Jekyll Island.

B. Summary Information

1. Jekyll Island Mitigation Site. A wetland mitigation plan was included in the 1998 Brunswick Harbor Deepening Project Final EIS. This plan involves excavation of 59.4 acres of high marsh area impacted by fill from a previous dredged material placement operation at Jekyll Creek. The FEIS stated that the excavated material would be placed on Jekyll Island. The FEIS was later modified to allow placement of excavated material on Andrews Island or other high ground area. The FONSI and Final EA for this modification were signed in February 2002.

Finalizing a disposal plan for this excavated material has become problematical. No non-problematic disposal plan has received final approval. Sediment samples from the mitigation site have recently been tested for physical and chemical parameters (Dial Cord, 2003). We have completed this Marine Protection, Research, and Sanctuaries Act (MPRSA) Section 103 Evaluation, using criteria listed in Section 102 of the Act, and determined that sediments excavated from the mitigation site are suitable for transport and disposal in the Brunswick Harbor ODMDS.

2. Jekyll Creek Reach of the AIWW. Disposal of sediment dredged from the Jekyll Creek channel is also problematical. No non-problematic disposal plan has been identified. Sediment samples from the channel have recently been tested for physical, and chemical parameters, and for biotoxicity and bioaccumulation (ENSR, 2003). We have completed this Marine Protection, Research, and Sanctuaries Act (MPRSA) Section 103 Evaluation, using criteria listed in Section 102 of the Act, and determined that sediments excavated from the channel site are suitable for transport and disposal in the Brunswick Harbor ODMDS.

C. Background

The material to be excavated from the mitigation site was originally placed there in 1964 during excavation for a marina adjacent to Jekyll Creek that was never constructed. This disposal produced a high ground mound, open tidal flats, high marsh, and impacted *Spartina alterniflora* marsh. The proposed mitigation plan would restore the high marsh and open tidal flats portions of the area by excavating those areas to elevations conducive to the growth of *Spartina alterniflora*.

Material from the Jekyll Creek AIWW (Atlantic Intracoastal Waterway) channel has regularly been dredged and placed in unconfined disposal areas adjacent to the channel. Dredged materials have been observed leaving the disposal site easement boundaries during and after past dredging operations. No practicable alternatives to the present maintenance practices exist at the present time.

Sediments from the Jekyll Creek AIWW channel have recently undergone physical, chemical, and biological testing and found to be suitable for transport and disposal in the Brunswick ODMDS (ENSR, 2003). Sediments from the proposed mitigation site have been tested for chemical contaminants, but not biotoxicity (Dial Cordy, 2003). Appendix A contains a comparison of the results of these two testing programs. Both the recently tested channel sediments and the mitigation site sediments originate from Jekyll Creek. We believe that because the channel sediment and the mitigation site sediment have a similar origin in Jekyll Creek, a comparison of the chemical and physical results of the two sediments can be used to determine their degree of similarity and whether the biotoxicity characteristics of the channel sediments can be presumed to relate to characteristics of the mitigation site sediments. This comparison reveals that the mitigation site sediments contain contaminants at levels approximately equal to or less than the channel sediments. Therefore, the results of the biotoxicity testing on the channel sediments can be used to predict biotoxicity characteristics of the mitigation site sediment.

This evaluation contains a comparison of the physical and chemical characteristics of the two sediments, which shows they are essentially similar, and then uses the biotoxicity results of the Jekyll Creek channel sediments to evaluate the suitability of placement of the mitigation site sediments in the Brunswick Harbor ODMDS in accordance with Section 103 of the MPRSA. The results of the Section 103 Evaluation of the Jekyll Creek channel sediment recently conducted by ENSR (ENSR, 2003) are cited in the following evaluations, documented in accordance with Appendix B of the Regional Implementation Manual (USACE and EPA, 1993). These evaluations find that both the Jekyll Creek channel sediments and the Jekyll Creek mitigation site sediments are suitable for transport and disposal in the Brunswick Harbor ODMDS.

D. Results of a comparison of the physical and chemical properties of sediment from the two proposals.

This is a summary comparison of the physical and chemical properties of the mitigation site sediments and the Jekyll Creek channel sediments. A detailed comparison of these sediments is provided in Appendix A.

1. Physical Properties. Two sediment composites from the Jekyll Creek channel and a reference (Blackbank River tributary) were tested. The two channel composites are a north channel composite consisting of 4 north reach samples and a south channel composite consisting of two south reach samples. The south channel composite consists of about 38.8 percent sand, 14.8 percent silt, and 46.6 percent clay. The north channel composite consists of about 22.8 percent sand, 17.7 percent silt, and 59.4 percent clay. A composite of six grab samples of mitigation site sediments shows the material to be 57.6 percent sand, 17.4 percent silt, and 25 percent clay. In general, the mitigation site sediments contain more sand and less clay that the channel sediments. A composite of two cores from within a proposed barge channel was also tested, along with a reference (Village Creek). Sediments from the proposed barge channel are relatively similar to both channel sediment composites and the channel reference area in the Blackbank River tributary. See Appendix A, Table 1, for a comparison of sediment physical properties from both studies.

Table 1. Physical Properties

Parameter	Site Core Composite	Site Grab Composite	Village Creek Ref	Jekyll Cr North Comp	Jekyll Cr South Comp	Blackbank R trib. Comp Ref
% sand 200	57.6	36.3	69.9	22.4	36.7	34.9
% sand 230	57.6	36.3	71.0	22.8	38.8	36
% silt	17.4	28.8	18.5	17.7	14.8	26.5
% clay	25	34.9	11.6	59.4	46.6	37.4
%TOC	1.67	1.75	2.12	2.39	1.60	1.79

2. Metals. Metal levels in the mitigation site sediments and the channel sediments are generally similar, with the mitigation site sediments usually having lower levels. Table 2 shows a summary of sediment metals data.

Table 2. Metals (mg/kg)

Parameter	Site Core Composite ave.	Site Grab Composite	Village Creek Ref	Jekyll Cr North Comp	Jekyll Cr South Comp	Blackbank R trib. Comp Ref
Al	39,650	43,200	40,900	17,000	15,000	10,000
As	10.2	7.6	11.6	12.0	9.1	13.0
Cd	0.65	0.6	1.0	<0.30	<0.29	<0.29
Cr	17.3	16.2	28.5	34	28	19
Cu	2.75	3.0	6.9	8.3	6.4	5.0
Fe	20,600	19,100	17,400	21,000	18,000	18,000
Hg	<0.05	<0.05	<0.05	0.077	0.099	0.21B
Mn	126	111	474	590	320	160
Ni	5.35	4.9	8.2	9.2	7.7	6.0
Pb	6.85	7.4	12.6	15.0	14.0	12.0
Tl	0.29	0.34	0.58	<0.99	<0.97	<0.97
Zn	24.25	19.1	37.4	42.0	34.0	25.0

a. Aluminum (Al). The site samples and the Village Creek sample all have similar levels of aluminum. These samples are over twice as high as the Jekyll Creek channel samples. The Blackbank River reference sample has the lowest level. No contaminant related impacts would be expected from aluminum.

b. Arsenic. The only metal found above screening levels (ER-Ls) was arsenic. This was true for all sediments except the mitigation site composite. Arsenic levels from sediments from both projects are below reference and can thus be considered "no greater than trace". All measured sediment arsenic levels are at most only slightly above the screening value of 8.2 mg/kg but far removed from the ER-M of 70 mg/kg, further indicating little cause for concern regarding potential environmental impacts. Referencing bioaccumulation data, *Nereis* was shown to have a significantly higher bioaccumulation in the Jekyll Creek north composite when compared to reference, but the difference was very minor (2.06 mg/kg wet for reference vs. 2.30 mg/kg wet for the north composite). The one Jekyll Creek south tissue value was 2.65 mg/kg-wet wt., slightly higher still. These values are above the lowest measured effect on growth of 1.15 – 1.28 mg/kg-wet wt. for the grass shrimp (ENSR, 2003, Table 5-1). However, as pointed out (ENSR 2003, Section 5.3) initial Nereis tissue arsenic values were even higher than project or reference tissues, eliminating any cause for concern relating to arsenic.

c. Cadmium was detected in both mitigation site sediment composites, at below reference values, but was not detected in the channel composites or reference. The mitigation site sediment levels (0.7 to 1.0 mg/kg) were all below the ER-L screening value of 1.2 mg/kg. The channel sediments were non-detect (0.30 mg/kg) at a level below the screening value and can be considered "not greater than trace". The mitigation

site levels are only slightly above the detection limit, below reference, and below the screening level, and can therefore also be considered as “not greater than trace”.

Regarding potential bioaccumulation, Cadmium bioaccumulation for the Jekyll Creek north channel sediments was found to be significantly greater than reference for *Nereis* (see ENSR, Table 4-20 and 4-21). However, comparison of the residue data to critical body residue data show that the levels observed (0.031-0.038 mg/kg wet wt – north channel, and 0.040 for the one south channel sample), are well below levels of concern (3.7 mg/kg wet wt. for *Mytilus*, see ENSR, Section 5.3.4 and Table 5-1).

Further corroborating the lack of environmental concern for cadmium is that the observed tissue levels were all lower than the initial tissue levels. The Jekyll Creek composites and reference all showed lower cadmium tissue levels (*Macoma* and *Nereis*) than the initial tissue, although the south channel composite was nearly the same as the initial tissue and only had one sample. For *Nereis*, the reference tissue levels showed the largest drop in cadmium levels, the Jekyll Creek north sample somewhat less of a drop, and the Jekyll Creek south sample nearly the same accumulation as the initial concentrations.

When considering all these data, it is clear there is no concern for bioaccumulation of cadmium from the Jekyll Creek channel or mitigation site sediments. Cadmium levels for both the mitigation site sediments and the channel sediments should be considered trace.

d. Chromium. Mitigation site sediment levels are less than the Village Creek reference and should be considered trace. They are similar to the Jekyll Creek reference (on which bioassays were performed) and less than the Jekyll Creek channel samples. Although the Jekyll Creek channel samples were above reference, these samples were well below screening level (ER-L: 81), no toxicity impacts were associated with these samples, and no bioaccumulation was detected. Therefore, there is no concern for chromium impacts from either project sediment.

e. Copper. Mitigation site levels are well below both references and the Jekyll Creek channel sample levels. Although Jekyll Creek channel sediments were above reference, all levels are well below the screening level (ER-L: 34), no toxicity impacts were associated with these samples, and no bioaccumulation was detected. Therefore, there is no concern for copper impacts from either project sediment.

f. Iron (Fe). All samples have similar levels of iron. This metal is not considered toxic and there is not concern for iron related impacts from either project sediment.

g. Mercury. Mercury was detected in the channel composites, but not in the mitigation site composites. Since the MDL for the mitigation site sampling (0.05 mg/kg) was below the ER-L screening level, mercury in the mitigation site sediment samples should be considered “not greater than trace”.

Both channel composites exhibit mercury levels of about 0.1 mg/kg, below the flagged channel reference (Blackbank tributary) value of 0.2 mg/kg. Only the channel reference is above the screening value of 0.15 mg/kg (ER-L). The channel sediment mercury levels are only slightly above the detection limit and also below the ER-L screening level of 0.15 mg/kg. Although mercury was detected at a higher level in the channel reference, relying solely on the fact that the project sediment levels were lower than the reference is questionable since mercury was also detected in the blank. The potential for bioaccumulation of mercury in the Jekyll Creek sediments is discussed next to verify that the mercury levels in these sediments should be considered as "not greater than trace".

Regarding potential bioaccumulation, the Jekyll Creek sediments do show the potential to support some bioaccumulation of mercury. Mercury bioaccumulation for the Jekyll Creek north channel sediment was found to be greater than reference for both *Nereis* and *Macoma* (see ENSR, Table 4-20 and Table 4-21). For *Macoma*, the mercury tissue level for the one south channel sample ((0.008 mg/kg) was slightly higher that the north channel tissue levels (0.005 – 0.006 mg/kg), which were higher than the reference (<0.004-0.005 mg/kg). For *Nereis*, the mercury tissue level for the one south channel sample (0.20 mg/kg) was slightly higher than the north channel tissues (0.17-0.18 mg/kg), which were higher than the reference values (0.011-0.014 mg/kg). However, comparisons of the residue data to critical body residue data show that the levels observed are well below levels of concern (12.3 mg/kg wet tissue concentration for *Uca*, see ENSR, Section 5.3.4 and Table 5-1). Therefore, there is no concern for bioaccumulation of mercury from the Jekyll Creek channel and these levels should be considered "no greater than trace."

h. Manganese. The mitigation site sediments show less manganese than their reference, the channel reference, and the Jekyll Creek channel sediments. Therefore, there is no reason to believe that there would be any environmental impacts associated with the mitigation site sediments due to manganese concentrations.

The Jekyll Creek channel sediments show manganese levels similar to the mitigation site reference (Village Creek), but higher than their reference (Blackbank tributary). Therefore, potential bioaccumulation must be considered.

Comparing the channel sediment composite results, the Jekyll Creek north channel sediment composite showed the highest level of manganese (590 mg/kg), the south channel composite the next highest level (320 mg/kg), and the channel reference the next highest level (160 mg/kg). No trends are evident from comparing the measured levels of manganese in sediments and *Nereis* tissue (See ENSR, 2003, Tables 4-14. 4-15, and 4-21). However, the *Macoma* tissue levels follow the sediment levels of manganese, with the Jekyll Creek north sediment composite showing the highest level of accumulation and the reference a lower level.

Both *Macoma* and *Nereis* showed significantly higher bioaccumulation compared to reference (ENSR 2003, Tables 4-19 and 4-20). The manganese levels in the tissue results for the one south channel sediment sample were similar to the north channel composite

levels. Although the Jekyll Creek sediments did support accumulation of manganese by *Macoma* and *Nereis*, comparison of the residue data (2.35-3.28 mg/kg wet wt.) to critical body residue data (15.35 mg/kg wet wt.) shows that the levels observed are well below levels of concern (see ENSR, Section 5.3.4 and Table 5-1). Therefore, there is no concern for bioaccumulation of cadmium from the Jekyll Creek channel or mitigation site sediments.

i. Nickel (Ni). The Jekyll Creek channel samples are similar to their Village Creek reference. Mitigation site samples are similar to their Blackbank channel reference and less that the Jekyll Creek samples and reference. All samples are well below the 20.9 mg/kg screening value (ER-L). There are no contaminant related concerns for concentrations of this metal in the sediments from either project.

j. Lead (Pb). The two mitigation site composite samples have similar levels. These levels are below both reference levels, the channel sediment levels, and the ER-L screening level of 46.7 mg/kg. There are no contaminant related concerns for lead levels in the mitigation site samples.

The Jekyll Creek channel sample composites are higher than both references but well below the 46.7 mg/kg screening level (ER-L). There was no significant difference in bioaccumulation between the channel samples and reference (ENSR 2003, Table 4-20). Therefore, there are no contaminant related concerns for concentrations of lead in the Jekyll Creek sediments.

k. Thallium (Tl). Both mitigation site composite levels are below the Village Creek reference. The Jekyll Creek study employed a slight higher detection limit, and all samples were less than about 1.0 mg/kg. There is no screening level. These data indicate no concern for contaminant related concerns for concentrations of thallium in sediments from either project.

l. Zinc (Zn). Both mitigation site composites are less than their reference and similar to the Blackbank reference. The Jekyll Creek samples have higher levels similar to the Village Creek reference, although the north channel composite is higher than the other samples, including the Village Creek reference. All samples are well below the screening level of 150 mg/kg. The observed levels of zinc in the sediments from both projects show no environmental concerns

Table 3. Manganese Tissue Levels (mg/kg wet, from ENSR, 2003, Tables 4-14 and 4-15)

	Macoma	*Nereis*
Initial Tissue 1	0.93	1.44
Initial Tissue 2	0.88	0.472
Initial Tissue 3	0.83	0.49
Jekyll Creek North-1	3.28	0.798
Jekyll Creek North-2	2.61	0.45
Jekyll Creek North-3	2.95	0.673
Jekyll Creek North-4	2.35	2.88
Jekyll Creek North-5	2.51	0.998
Jekyll Ref-1	2.76	0.268
Jekyll Ref-2	1.34	0.249
Jekyll Ref-3	1.76	0.282
Jekyll Ref-4	1.67	0.381
Jekyll Ref-5	1.77	0.284
Jekyll Creek South	2.96	0.977

3. Metals Summary.

In summary, no sediment metal levels of concern were noted in any of the samples. Furthermore, the elutriate data show no violations of water quality criteria (see ENSR 2003 Tables 4-3 and 4-4 and Figure 5-1, and Dial Cordy 2003, Section 3.4, Tables 10-14). In general dissolved metal elutriate levels were highest for the Jekyll Creek channel sediments. With regards to sediment metal levels, the mitigation site composites are most similar to the Blackbank tributary reference (channel study). The metal chemistry results show no concern for contaminant related impacts for either the mitigation site sediments or the Jekyll Creek channel sediments.

a. Comparison between Mitigation Site samples and Jekyll Creek Channel samples.

The levels of most metals are lower in the mitigation site samples than the Jekyll Creek samples (Cr, Cu, Hg, Mn, Ni, Pb, and Zn). In addition, the levels of As and Fe in the mitigation site samples are lower than the Jekyll Creek north channel samples. The arsenic levels are also lower than the Blackbank River reference. Only aluminum (Al) and cadmium (Cd) levels are higher in the mitigation site samples than in the Jekyll Creek channel samples. There is no toxicity concern for aluminum. Cadmium levels (0.6 and 0.7 mg/kg), although higher than the channel samples, are below the ER-L screening level of 1.2 mg/kg. Furthermore, the levels are below the Village Creek reference level.

b. Mitigation Site Barge Channel Core Composite Summary.

Based on physical properties, the mitigation site barge channel sediment core composite is most similar to the Village Creek reference, and could appropriately be compared to that reference. All metal levels in the mitigation site barge channel core composite are less than the Village Creek reference, except for iron, for which there are no toxicity concerns. Therefore, Tier III testing due to metal levels is not appropriate for the mitigation site barge channel core composite.

Tying the mitigation barge canal core composite to biotoxicity data based on physical properties of the Jekyll Creek samples is more problematic, since the barge canal samples contain much more sand. One would expect the barge canal sediment to exhibit less toxicity. Of the Jekyll Creek samples, it is most similar to the Jekyll Creek south composite and the Jekyll Creek reference (Blackbank River tributary). Most metal levels in the mitigation site barge canal composite are lower than both Jekyll Creek sediment composites and their reference (Cr, Cu, Hg, Mn, Ni, Pb, and Zn), leaving only Fe, Al, Cd, and As. Iron, aluminum, and cadmium levels are higher in the grab sample composite than either of these Jekyll Creek samples. There is no toxicity concern for Fe or Al, and since the Cd level (0.7 mg/kg) is less than the ER-L screening value (1.2 mg/kg), the cadmium level is of no concern. The arsenic level in the grab composite is less than in the Blackbank reference but higher than the Jekyll Creek south sample. Therefore, it would be most appropriate to compare the grab sample composite to the Blackbank reference. Since the Blackbank reference showed no toxicity or bioaccumulation concerns, there should be no metal related concerns from the mitigation site barge canal sediments due to biotoxicity.

c. Mitigation Site Grab Composite Summary.

The Mitigation Site grab Composite shows levels of most metals (As, Cd, Cr, Cu, Mn, Ni, Pb, Tl, and Zn) lower than the Village Creek Reference. The only exceptions are mercury, which was not detected, and aluminum and iron, which are not considered toxic. Therefore, Tier III testing due to metal levels is not appropriate for the grab composite.

Based on physical properties, the mitigation site grab composite is most similar to the Jekyll Creek Blackbank River reference composite. Therefore, this reference sample can be used to predict potential biotoxicity concerns. Most metal levels in the grab composite are lower than this reference (As, Cr, Cu, Hg, Mn, Ni, Pb, and Zn). Iron and aluminum have no toxicity concerns. Cadmium levels are higher in the grab sample composite than any of the Jekyll Creek samples. However, as discussed earlier, since the Cd level (0.6 mg/kg) is less than the ER-L screening value (1.2 mg/kg), the cadmium level is of no concern. Again, since the Blackbank reference showed no toxicity or bioaccumulation concerns, there should be no metal related concerns from the mitigation site barge canal sediments due to biotoxicity.

4. Elutriate Results.

Elutriate Results for metals are shown in the table below. It appears that data for the mitigation site are listed as below RLs/PQLs, whereas the Jekyll Creek channel samples and reference data are listed as below MDLs, so these data are not easily compared. However, it appears that the mitigation site elutriate data for manganese are lower than those for the Jekyll channel and the hexavalent chrome data may be higher. Since all dissolved metal concentrations are below WQ standards there should be no concern for environmental impacts from dissolved metal concentrations.

Table 4. Metals (dissolved fraction, ug/l)

Parameter	Site Grab Composite	Site Core Composite	GA WQ Criteria	Jekyll Cr North Comp	Jekyll Cr South Comp	Brn ODMDS
Arsenic	10.6	37.2	69	44.2	19.5	2.3
Beryllium	<0.2	<0.2	n.s.	<0.02	<0.02	<0.02
cadmium	<9	<9	42	0.1	0.1	0.11
copper	<2.9	<2.9	4.8	0.4	0.6	0.5
Hex chrome	<50	50	1100	<0.01	<0.01	-
chromium	<30	<30	1100	0.7	0.3	<0.2
lead	<5	<5	210	0.04	0.08	0.02
Manganese	729	788	n.s.	6,910	1,440	<5
Mercury	<0.2	<0.2	1.8	<0.2	<0.2	<0.2
Nickel	<8.3	<8.3	74	0.81	0.74	0.46
selenium	<1	<1	290	<1	<1	<1
silver	<2.3	<2.3	1.9(fed)	<0.02	0.03	0.04
zinc	<30	<30	90	0.7	12.9	0.8

5. Non-metal Inorganics. The mitigation site samples were found to have less TKN than any of the other samples. The elutriates reflect this same tendency, with the Jekyll Creek channel samples both showing higher elutriate TKN that the mitigation site samples. There are no water quality standards for TKN and no environmental impacts from TKN levels would be expected. The mitigation site and Village Creek reference sediment samples were found to have more phosphorus than the Jekyll Creek samples or reference. However, the elutriate results do no reflect this trend. The Jekyll Creek dissolved fraction elutriates for the channel samples showed total phosphorus levels about 20 to 30 times above water quality criteria, whereas the mitigation site elutriates showed total phosphorus levels at or just above the same criteria. The reason for this disparity is not apparent. However, mixing would be expected to bring the Jekyll Creek elutriates within compliance quickly and none of these levels are expected to affect the bioassay results or produce environmental impacts.

Table 5. Sediment Non-metal Inorganics (mg/l).

Parameter	Site Canal Core Composite ave.	Site Grab Composite	Village Creek Ref	Jekyll Cr North Comp	Jekyll Cr South Comp	Blackbank R trib. Comp Ref
TKN	941	814	1980	2400	2100	1600
T Phos	267	539	1010	15	5.7	2.6
Sulfide	1.95	2.2	1330	<25	88	110

These data show that the mitigation site samples have less TKN than the reference or any of the Jekyll Creek channel samples. The mitigation site samples are closest to the Blackbank tributary reference. The mitigation site samples and reference have much more total phosphorus than any of the Jekyll Creek channel samples. Sulfide levels of the mitigation site samples appear to be closest to the Jekyll Creek north channel sample.

Table 6. Non-metals, ug/l dissolved

Parameter	Site Grab Composite	Site Core Composite	GA WQ Criteria	Jekyll Cr North Comp	Jekyll Cr South Comp	Brn ODMDS
P	179	870	100	3,500	2,300	32B
TKN	4,443	3,920	n.s.	27,000	17,000	23

The sample with the highest GAWQ Criteria violation is the Jekyll Creek north channel composite. For this sample, total P would require a dilution factor of 35 (see ENSR 2003, Table 4-4). Only a minor amount of mixing would be required for the receiving water to comply with the standard. There should be no concern for environmental impacts from total phosphorus levels in any of the sediments.

6. Pesticides.

a. Sediment Concentrations. Pesticide levels in the mitigation site sediments and the Jekyll Creek channel sediments are very similar. None of the project sediment samples showed any sediment pesticide levels at or above sediment screening levels (ER-Ls). In fact, none of the sediment samples showed definite levels of any pesticides. Several pesticides showed up at "J" flagged levels in the sediments at the mitigation site, Jekyll Creek channel, and the Village Creek reference (for the mitigation site)(see Table 7, below). The only detected pesticide with an ER-L (at 0.5 mg/kg) was alpha chlordane. This pesticide was found only in the mitigation site composite. The estimated level, 0.38 ug/kg, is below the ER-L. Therefore, there should be no concern for contaminant related impacts due to pesticides in any of the sediments.

b. Elutriate Results. The elutriate results confirm that there should be no contaminant related concerns due to pesticides. The Jekyll Creek channel elutriates showed trace amounts ("J" flagged) of 2,4-DDD, alpha chlordane, hexachlorobenze, mirex, and oxychlordane, all below water quality criteria (see Table 8, below). Only in the case of mirex in the north and south channel sediment and hexachlorobenze in the north channel sediment were pesticides detected in both the sediment and the elutriate. Observed elutriate levels for mirex were only slightly above the federal water quality criterion. They would be expected to meet criteria upon initial mixing. Oxychlordane was the only pesticide detected in the elutriates above reporting limits, and this was for the mitigation site grab sample composite elutriate. The detected level (0.014 ug/l dissolved) was about 3.5 times the water quality criterion of 0.004 ug/l. Mixing at the discharge site would readily bring this substance within the water quality criterion. It is interesting to note that this pesticide was not detected in the mitigation site grab sediment composite, further indication that this pesticide does not exist in the mitigation site sediment at levels of concern.

c. Worst Cast Mixing Calculation. Although neither project sediment was found to contain any pesticides at levels of concern, the detection limit for toxaphene in the elutriate tests far exceeded the state standard in both project studies. The results are discussed below.

d. Jekyll Creek Channel. In the Jekyll Creek channel study (ENSR), all sample elutriates were non-detect for toxaphene, with a reporting limit of 0.5 ug/l, and an MDL of 0.1 ug/l. Since the GA water quality criterion for toxaphene is 0.0002, a dilution factor of 2500 is required to bring the elutriate into compliance with the standard (assuming the concentration of toxaphene in the elutriate could potentially be at 0.5 ug/l). Since this was the substance requiring the highest dilution for compliance, the STFATE Model was run on toxaphene using ½ the reporting DL (value used in model run was 0.00025 mg/l, see ENSR, Table 2-6 for input parameters). It was found that compliance would be reached in approximately 3.3 hours (see ENSR, Figures 5-1 and 5-2). Therefore, ENSR found there were no environmental concerns related to pesticides in the Jekyll Creek channel sediment elutriates.

e. Jekyll Creek Mitigation Site. For the mitigation site elutriates, dissolved toxaphene was also non-detect in all of the samples, with the core composite elutriate sample having an MRL of 0.53 ug/l and an MDL of 0.17 ug/l and the grab sample composite elutriate having an MRL of 0.49 ug/l and an MDL of 0.16 ug/l. These detection limits are essentially the same as those achieved for the Jekyll Creek channel elutriates. Therefore, the same conclusions can be reached about the mitigation site sediment elutriates that were reached for the Jekyll Creek channel sediment elutriates: there are no environmental concerns related to pesticides in the mitigation site sediment elutriates.

Table 7. Sediment Pesticides (ug/kg)

Parameter	Site Core Composite *	Site Grab Composite	Village Creek Ref	Jekyll Cr North Comp	Jekyll Cr South Comp	Blackbank R trib. Comp Ref
Aldrin	1.4Ui	1.3Ui	7.3Ui	2.8U	2.5U	2.2U
Alpha chlordane	1.4U	**0.38J**	2.1U	1.4U	1.2U	1.1U
2,4'-DDE	**0.56JP**	1.1J	2.1U	1.4U	1.2U	1.1U
4,4'-DDT	1.4U	1.3U	2.1U	**0.098JP**	**0.29J**	1.1U
Endosulfan I	1.4U	1.3Ui	2.1Ui	**0.05JB**	**0.12JB**	2.2U
Endosulfan II	**0.16J**	1.3Ui	2.1U	2.8U	2.5U	2.2U
Endosulfan Sulfate	1.4U	1.3U	2.1U	**0.13JP**	2.5U	2.2U
Endrin Aldehyde	1.4U	1.3U	2.1U	**0.12JP**	**0.28JP**	2.2U
Alpha-BHC	1.4U	1.3U	**0.39J**	**0.063JP**	2.5U	2.2U
Heptachlor Epoxide	1.4U	1.3UI	2.1U	1.4U	**0.084JP**	1.1U
Hexachlorobenze	1.4U	1.3U	2.1Ui	**0.089JPB**	2.5U	2.2U
Mirex	1.4Ui	1.3U	**0.47JP**	0.27J	**0.31JP**	2.2U

*Site Core value is the highest of the site core composite or site core composite duplicate, except for U flags, where it is the lowest.
Note: Non-detects (U flags) are shown as less than the reporting limit.
Dial/Cordy flags (Site Core, Site Grab, and Village Creek)
U- The compound was analyzed for but not detected at or above the MRL/MDL
i-The MRL/MDL has been elevated due to matrix interference
J-The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL
P-The GC or HPLC confirmation was exceeded.
ENSR flags (Jekyll Creek North, Jekyll Creek South, Blackbank)
U-Undetected; result is less than the reporting limit.
J-Estimated; result is below the reporting limit but greater than or equal to the MDL.
B-Target compound present in the method blank.
P-Relative percent differenc between the primary and confirmatory columns (GC or LC) or detectors (LC) exceed 40%. The lowest concentration has been reported.

Table 8. Pesticides, ug/l, dissolved elutriate

Parameter	Site Grab Composite *1	Site Core Composite*1	Fed/GA WQ Criteria	Jekyll Cr North Comp*1	Jekyll Cr South Comp *1	Brn ODMDS
2,4-DDD	<0.0097	<0.011	n.s./n.s.	**0.0049J**	<0.1	<0.1
Alpha-chlordane	<0.0097	<0.011	0.09/0.004	<0.14	**0.0011J**	<0.14
Hexachloro-benzene	<0.0097	<0.011	n.s./n.s.	**0.0021J**	**0.0022JP**	**0.0015JP**
Mirex	<0.0097	<0.011	0.001/n.s.	**0.0013JP**	**0.0013J**	**0.00029JP**
Oxychlordane	**0.014**	**0.0047J**	n.s./0.004	<0.14	<0.14	**0.00031J**

*1 MRL shown for non-detects.

7. PAHs.

a. Sediment Results. In general, the mitigation site samples show lower levels of PAHs than the Jekyll Creek channel samples. The Jekyll Island mitigation site sediments showed some "J" flagged levels of PAHs, but these levels were all less than the mitigation site reference. For those substances that were non-detect in the mitigation site sediments, the MDL was lower than the reference MDL. The reference for the Jekyll Creek channel sediments study (Blackbank tributary) showed all sediment sample PAHs as non-detect (less than the reporting limit). Since that study had no "J" flagged values, it is not completely certain whether the mitigation site levels are in fact less than the Blackbank tributary reference. However, it is clear that the levels involved are very small and well below screening criteria.

With reference to the Jekyll Creek sediment, the Jekyll Creek north composite and the Blackbank tributary reference were both all non detect (less than reporting limit) for all PAHs. It is clear that there are no contaminant concerns related to PAHs for the north portion of the Jekyll Creek channel (although there were PAHs detected in some of the Jekyll Creek north sub samples. The Jekyll Creek south composite does show low levels of several PAHs (total PAHs, including the MRL for non-detects, 190 ug/kg), all below screening levels. This total is well below the ERL for low molecular wt. PAHs(552), high molecular weight PAHs, (1,700 ug/kg), and total PAHs (4,022 ug/kg). . Furthermore, all PAHs showed no bioaccumulation in either *Nereis* or *Macoma* (see ENSR 2003, Tables 4-14, 4-15, and 4-20). Therefore, the PAH levels in the Jekyll Creek south channel sediment composite produce no concern for contaminant related impacts.

b. Elutriate Results. The elutriate data confirm the expectation of no contaminant related impacts for either project due to PAHs. All PAHs were non-detect in the elutriates at detection levels well below WQ standards. The difference in reporting limits between the two studies makes direct comparisons difficult. However, it is clear that all sample elutriates are well below Federal water quality criteria. Therefore, there are no contaminant water quality concerns related to PAHs.

Table 9. PAHs. Detected PAHs are shown below, ug/kg.

Parameter	Site Core Composite ave. *1	Site Grab Comp *2	Village Creek Ref	Jekyll Cr North Comp *3	Jekyll Cr South Comp	Black-bank R trib. Comp Ref
2-Methylnaphthalene	<6.1(0.39)	<5.8(0.38)	<9.0(0.64)	<2(2.6)	<1.8	<1.6
Anthracene	<6.1(0.35)	<5.8(0.35)	<9.0(0.58)	<3.3(14)	3.2	<2.6
Naphthalene	0.44J	0.60 J	0.75 J	<2.8	<2.5	<2.2
Phenanthrene	<6.1(0.28)	0.54 J	0.66J	<3.3(12)	4.8	<2.6
Flouranthene	0.41J	1.1 J	1.7 J	<4.2(200)	28	<3.3
Fluorene	<6.1(0.31)	<5.8(0.31)	<9.0(0.52)	<3(5.6)	<2.8	<2.4
Pyrene	0.40J	1.0 J	1.9 J	<4.7(230)	24	<3.7
Benz(a)anthracene	<6.1(0.24)	0.50 J	1.4 J	<4.2(77)	21	<3.3
Chrysene	<6.1(0.39)	0.67 J	1.3 J	<5.8(96)	24	<4.6
Benzo(b)Fluoranthene	<6.1(0.55)	0.83 J	1.8 J	<4.2(75)	14	<3.3
Benzo(k)Fluoranthene	<6.1(0.43)	0.51 J	0.98 J	<4.2(88)	17	<3.3
Benzo(a)pyrene	<6.1(0.43)	0.56 J	1.4 J	<3.3	16	<2.6
Indeno(1,2,3-cd)perylene	0.44J	0.77 J	1.3 J	<2.8	8.5	<2.2
Benzo(g,h,i)perylene	0.52J	0.72 J	1.3 J	<3.6(13)	9.1	<2.8

*Note: Values in parentheses are either *1: the MDL or the highest "J" value in a sub sample/dup (site grab composite column), *2:the MDL, or *3: the highest detected amount in a sub sample.

Table 10. PAHs, ug/l, dissolved

Parameter	Site Grab Composite	Site Core Composite	Fed WQ Criteria	Jekyll Cr North Comp	Jekyll Cr South Comp	Brn ODMDS
2-methynapthalene	0.0040J	0.0042J	300	<1	<1	<1
acenaphthene	0.0068J	0.0054J	970	<1	<1	<1
anthracene	<ND*1	0.0011J	300	<1	<1	<1
Flourene	0.0036J	0.0036J	300	<1	<1	<1
Naphthalene	0.035	0.035	2350	<1	<1	<1
Phenanthrene	0.0065J	0.0066J	7.7	<1	<1	<1

*1 MRL=0.021, MDL=0.0011

8. PCBs.

a. Sediment Results. In general, mitigation site samples are lower in PCBs than the Jekyll Creek channel samples (see Table 11). The mitigation site composite sample does show slightly higher levels of PCB 206 than either reference (1.8 ug/kg vs. 1.2 or 1.3 ug/kg), but much less than the Jekyll Creek north channel composite (7.2 ug/kg). No PCBs were detected in the barge channel composite. Mitigation site samples are similar to their Village Creek reference, but higher than the Blackbank tributary reference. Jekyll Creek samples showed higher levels than reference, with the south channel composite showing the highest total readings, above the ER-L screening value (22.7 ug/kg), but well below the ER-M (180 ug/kg). Because of the low levels of PCBs encountered in area sediments, no elutriate analyses for PCBs were performed. However, sediment PCB levels are discussed further (see below). Where these congeners were detected, they show essentially the same ratio. This indicates that their derivations may be similar. Because the mitigation site samples are essentially the same or less than their reference, there should be no concern for contaminant impacts due to PCB congener levels in the mitigation site sediments. The mitigation site samples should be considered to contain PCBs at levels "no greater than trace", with no PCB contaminant related concerns for that site.

Jekyll Creek channel composites showed PCB levels greater than both references, therefore requiring an investigation of potential bioaccumulation. A comparison of PCB tissue levels with action levels is discussed in detail in the Section 103 Evaluation and by ENSR (ENSR, 2003). Since the Jekyll Creek north channel composite showed tissue accumulation of PCBs to be well below action levels (see discussion below), there should be no contaminant concerns related to sediment PCB levels for the mitigation site sediment.

b. Jekyll Creek Bioaccumulation Results.

The Jekyll Creek north channel sediments and to a greater extent the south channel sediments showed detectable levels of PCBs, especially congener 206. The north channel sediments elicited very little uptake of PCBs over the initial levels for *Nereis* (see Table 4, below, note that the *Nereis* result represents only one sample). *Macoma* did exhibit a low level of PCB uptake over initial tissue levels and reference (6.7 vs. 5.2 ug/kg total PCBs for initial and reference). However, this uptake appears to be within no effect ranges (see ENSR, Table 5-1). Therefore, there should be no contaminant concerns related to PCB levels in the Jekyll Creek north channel sediments.

The south channel sediment composite showed total PCBs (43.3 ug/kg) above the ERL sediment screening criterion (22.7 ug/kg), but well below the ERM (180 ug/kg). *Macoma* showed significant bioaccumulation over reference for PCBs 49, 153, 187, 206, and 209 (ENSR, Table 4-20). However, accumulation of total PCBs for *Macoma* was at low levels (7.0 ug/kg ave. vs. 5.2 ug/kg ave. for initial and reference) well below levels of concern (2 mg/kg, ENSR, Table 4-18; see also ENSR, Table 5-1). *Nereis* showed significant bioaccumulation over reference for PCBs 187 and 206 (ENSR, Table 4-20).

However, accumulation of total PCBs was also at a low level (8.6 ug/kg) below reference (9.1 ug/kg) and initial values (9.2 ug/kg), and well below levels of concern (see above). It therefore appears that there should be no concerns for PCB bioaccumulation associated sediments from the south channel.

Table 11. PCB congeners detected in sediment, ug/kg(non-detects are listed as less than reporting limit)*.

Parameter	Site canal core Composite	Site Grab Composite	Village Creek Ref	Jekyll Cr North Comp	Jekyll Cr South Comp	Blackbank R trib. Comp Ref
126			<0.5	0.46P	1.2P	<0.2
180	<0.35	<0.33	<0.5	<0.28	0.77	<0.2
187	<0.35	0.18J	0.19J	1.5P	4.1P	<0.2
206	<0.35	1.8	1.3	7.2	28	1.2
209	<0.35	0.47	0.40J	1.6	5.8	<0.2
Total PCBs (26)	4.66	6.37	7.93	13.84	47.33	3.7

Note: Non-detects are listed as less than reporting limit. PCB total includes one-half the MRL for non-detects. From ENSR, 2003. Table 4-1, and Dial Cordy, 2003, Appendix D.

* Several other congeners were detected in the channel sediment sub samples, but not in the composites. These included: PCBs 101, 105, 126, 18, and 28, that were not detected in the tissues, and PCBs 118, 138, 153, 183, 49, and 52 that were detected in tissue.

Table 12. PCB Congeners (ug/kg) in *Macoma* tissue, from ENSR, Table 4-14.

Sample	118	153	183	187	206	44	49	52	209	Total *
Ini-1	<0.11	<0.077	<0.16	<0.15	<0.094	<0.063	<0.089	<0.29	<0.093	5.2
Ini-2	<0.11	<0.077	<0.16	<0.15	<0.094	<0.072	<0.089	<0.29	<0.093	5.2
Ini-3	<0.11	<0.077	<0.16	<0.15	<0.094	<0.063	<0.089	<0.29	<0.093	5.2
N-1	<0.11	**0.15J**	<0.16	**0.46J**	**0.88**	<0.063	<0.089	<0.29	**0.20J**	6.7
Ref-1	<0.11	<0.077	<0.16	<0.15	<0.094	<0.063	<0.089	<0.29	<0.093	5.2
Ref-2	<0.11	<0.077	<0.16	<0.15	<0.094	<0.063	<0.089	<0.29	<0.093	5.2
Ref-3	<0.11	<0.077	<0.16	<0.15	<0.094	<0.063	<0.089	<0.29	<0.093	5.2
Ref-4	<0.11	<0.077	<0.16	<0.15	<0.094	<0.063	<0.089	<0.29	<0.093	5.2
Ref-5	<0.11	<0.077	<0.16	<0.15	<0.094	<0.063	<0.089	<0.29	<0.093	5.2
S-1	**0.27JP**	**0.32J**	**0.26J**	**1.0**	**1.1**	**0.12J**	**0.32J**	**0.42J**	**0.24J**	8.6
S-2	<0.11	**0.19J**	**0.23J**	**0.64**	**0.69**	<0.063	**0.17J**	<0.29	**0.15J**	6.6
S-3	<0.11	**0.24J**	**0.20J**	**0.7**	**0.83**	<0.063	**0.25J**	**0.32J**	**0.16J**	7.0
S-4	<0.11	**0.19J**	<0.16	**0.64**	**0.75**	<0.063	**0.18J**	<0.29	**0.17J**	6.6
S-5	<0.11	**0.12J**	<0.16	**0.56**	**0.61**	<0.063	**0.22JP**	<0.29	**0.11J**	6.3

*Total PCBs, includes total for 27 congeners, MDL value for non-detects. Bold figures are measured or estimated values.
Note: "Ini" refers to initial tissue reps, "N-1" refers to the north channel composite, "Ref" refers the Blackbank River reference composite reps, and "S" refers the south channel composite reps.

Table 13. PCB Congeners (ug/kg) in *Nereis* tissue, from ENSR, Table 4-15.

Sample	138	153	180	187	206	209	Total *
Ini-1	0.69Ui	**2.4**	**0.69**	**0.78**	<0.094	<0.50	**9.3**
Ini-2	**1.5**	**2.3**	**0.64**	**0.63**	<0.094	<0.50	**9.8**
Ini-3	0.55Ui	**2.1P**	**0.55**	**0.51**	<0.094	<0.50	**8.4**
N-1	**1.3P**	**2.0**	0.51Ui	**0.82**	<0.094	<0.50	**9.3**
Ref-1	<0.081	**1.3**	<0.16	**0.53**	<0.094	<0.50Ui	**6.8**
Ref-2	<0.26	**2.1**	<0.5	<0.47	<0.3	<1.6	**18.0**
Ref-3	<0.081	**1.2P**	<0.16	**0.51**	<0.094	<0.5	**6.7**
Ref-4	<0.081	**1.4P**	<0.16	**0.57**	<0.094	<0.5	**6.9**
Ref-5	<0.081	**1.7P**	**0.51**	<0.15	<0.094	<0.50	**7.2**
S-1	<0.084	**0.53P**	<0.17	<0.16	<0.097	<0.52	**5.9**
S-2	<0.68Ui	**2.5**	**0.69**	**1.1**	**0.68**	**0.58**	**10.8**
S-3	**1.2P**	**2.0P**	**0.55**	**1.0**	**0.62**	**0.57**	**10.5**
S-4	<0.081	**1.5P**	<0.16	**0.86**	**0.66**	<0.50	**7.9**
S-5	<0.081	**1.4P**	<0.16	**0.83**	**0.65**	<0.50	**7.7**

*Total PCBs, includes total for 27 congeners, MDL value for non-detects. Bold figures are measured or estimated values.

E. Summary Documentation – Jekyll Creek Mitigation Site

1. Dredging and Disposal Project Information.

a. Map showing the location of the wetland mitigation site is shown in Figure 2 (Dial Cordy, 2003).

b. Core boring logs keyed to the map. See Appendix C (Dial Cordy, 2003).

c. Volume of Material to be Dredged. Approximately 420,000 cu. yds would be excavated from the mitigation site and transported to the Brunswick Harbor ODMDS for disposal. The total yardage consists of 330,000 cu. yds from the mitigation site, and either 90,000 cu. yds. from the barge canal or 12,000 to 26,000 cu. yds from the temporary barge facility. Figures showing location of the barge canal or temporary barge facility can be found in the EA (Figures 3 and 4). The barge facility excavation would take place in essentially the same location as the barge canal. All contaminant determinations for the barge canal are assumed to apply also to excavation for a temporary barge facility.

d. Percentages of fine, medium and coarse-grained material by dredging unit. Grain size analyses of the sediment to be excavated from the proposed barge canal reveal that the material contains about 57.6 percent sand, 17.4 percent silt, and 25 percent clay. The proposed mitigation site sediment contains about 36.3 percent sand, 28.8 percent silt, and 34.9 percent clay.

e. Bathymetric information for the channel to be dredged. Not applicable. The sediments proposed for ocean disposal will come from excavation of a wetland mitigation site on Jekyll Island.

f. Design depth and width. The area to be excavated for the mitigation site is approximately 59 acres and will be excavated to approximately 4.1 ft mlw. The area for the barge canal will be excavated to –14 ft. MLLW +2 ft. of overdepth. The canal will be approximately 60 feet wide and 1350 feet long. Excavation for a temporary barge facility would be to the same depth as the barge canal (1) in an area approximately 350 ft. long and 90 feet wide parallel to the Jekyll Creek bank with a 60 ft. wide passageway to the AIWW channel or (2) in two areas approximately 350 feet long and 40 feet wide perpendicular to the bank and merging into one 60 ft. wide passageway to the AIWW channel.

g. Expected methods of dredging, transport, and disposal of material. Dredging would be by mechanical clam shell or bucket dredge, with transport by dump barge to the Brunswick ODMDS.

h. Expected start, duration and end of dredging, transport and disposal of material. Dredging, transport, and disposal may occur at any time of the year. Depending on method, dredging could take 30 to 90 days.

i. Location of placement of dredged material at the ODMDS. It is expected that placement would most likely occur within the southern half of the Brunswick ODMDS. No placement would be allowed above –25 ft. mlw.

j. Compliance with ODMDS site designation conditions (if available). The EIS states that impacts will be restricted to site boundaries. Contractor will be required to have precise navigation equipment and determine coordinates of each dump. Pre and post bathymetric surveys will be completed to document that placement occurs within the site boundaries.

2. Exclusionary Criteria and Need for Testing Documentation.

(i). Rationale for meeting exclusionary criteria. Subject sediments were found to not meet the exclusionary criteria at 40 CFR 227.13: (1) sediments from the mitigation site contain predominantly sand but the area does not exhibit a particularly high current or wave energy transporting a large bed load, (2) these sediments are not proposed for beach renourishment, (3) The sediments proposed for disposal are substantially the same as substrate at the Brunswick ODMDS but is not far removed from known existing and historical sources of pollution. Sediment from the mitigation site originally came from Jekyll Creek. These sediments are thought to be essentially the same as sediments recently tested from Jekyll Creek. Results of the Jekyll Creek sediment testing are discussed below. We believe the biotoxicity results from the Jekyll Creek channel testing are similar to the results that should be expected if the mitigation site sediments were to undergo the same tests. The testing of sediment from Jekyll Creek was performed in accordance with 40 CFR 227.13(c) (see ENSR, 2003).

(ii). Locations (keyed to a map), quantities and types of pollutants discharged upstream of the dredging area (if available). None available.

(iii). Grain sizes of the dredged material. See 1(d) above.

(iv). Results and dates of previous testing (if available). No previous testing data from the mitigation site sediment are known to exist. These sediments were dredged from Jekyll Creek in 1964. Bulk sediment and elutriate testing of the Jekyll Creek reach is described in the EIS for the AIWW (U.S. Army Engineer District, Savannah, 1976). More comprehensive testing of Jekyll Creek sediment was conducted in 2002 (ENSR, 2003). Table 5 shows the results of the same or similar tests conducted at both times. Mercury appears to have been higher during the 1975 testing. The results of the oil and grease test in 1975 and the total petroleum test in 2002 are not directly comparable. However, the results hint that petroleum hydrocarbons may have been higher in 1975. No significant concerns were identified in 1975. No significant concerns were identified during the 2002 testing, as discussed in ENSR, 2003. Since the mitigation site sediments were dredged from Jekyll Creek before 1975, constituent levels at the time the sediments were dredged would be expected to be more similar to levels shown by the 1975 testing than levels shown in 2002. However, Jekyll Creek north sediments are known to have a high percentage of fines that do not readily settle out (the Jekyll Creek north composite elutriate showed a TSS level of 83,460 mg/l, ENSR, 2003). Since fines are known to carry the majority of contaminants, many of the fines in the dredged sediment would be expected to return to Jekyll Creek during the dredging operation. The sediment actually deposited on the mitigation site would be expected to have a much higher percentage of sand than the sediment actually dredged, and much lower levels of contaminants. In addition, because these sediments were placed above MLW, the sediments placed on the mitigation site would be expected to have experienced significant leaching in the 39 years they have been on the site. We believe the 2002 testing by ENSR of Jekyll Creek channel sediment is actually a worst-case scenario for expected results of mitigation site sediment.

Table 14. Sediment Testing Results (ppm unless otherwise noted)

	Grain Size/%sand	TKN	Oil and Grease/TPH	Mercury	Lead	Zinc
1975*1	"Silt"	4200	9400/	1	25	71
JN*2	.7-19.8%	960-3400	/<71	0.07-0.15	13-32	34-62
JS*3	5.3-51.5%	600-2100	/<59	0.02-0.18	6.5-17	16-42
Mit. Site	57.6	814	<60	<0.05	7.4	19.1
Barge canal	36.6	941	<60	<0.05	6.9	24.3

*1 One sample from Jekyll Creek north reach at about Station 13+000
*2 Four samples from Jekyll Creek north reach, 2002
*3 Two samples from Jekyll Creek south reach, 2002

(v). Dates of previous dredging. Subject sediment to be excavated from the mitigation site was originally dredged from Jekyll Creek and placed on the site in 1964. The marina never came to fruition and the dredged area was later filled in by O&M material from Jekyll Creek navigation dredging in the mid to late 80's.

3. Water – Column Determinations (Tiers II-IV). These determinations are based on recent testing of Jekyll Creek sediments. The results would be expected to be similar for the sediment to be excavated from the mitigation site.

a. Limiting Permissible Concentration Compliance Documentation

(i) Results of the ADDAMS model demonstrate compliance. See ENSR, 2003, Chapter 5.

(ii) Comparison with water quality criteria. In compliance. See ENSR, 2003, Chapter 5.

b. Water – Column Toxicity Evaluation. In compliance. See ENSR, 2003, Chapter 5.

c. Water – Column Testing Report. In compliance. See ENSR, 2003, Chapter 5.

4. Benthic Determinations (Tiers II-IV). These determinations are based on recent testing of Jekyll Creek sediments. The results would be expected to be similar for the sediment to be excavated from the mitigation site.

a. Benthic Toxicity Evaluation. In compliance. See ENSR, 2003, Chapter 5.

b. Benthic Bioaccumulation Evaluation. In compliance. See ENSR, 2003, Chapter 5.

(i) Theoretical Bioaccumulation Potential. In compliance. See ENSR, 2003, Chapter 5.

(ii) Benthic Bioavailability Evaluation. In compliance. See ENSR, 2003, Chapter 5.

c. Sediment Testing Report. No significant concerns identified. See ENSR, 2003.

5. MPRSA Section 103 Ocean Disposal Criteria Compliance Evaluation.

a. Compliance with Part 227 Subpart B – Environmental Impact.

(i) 227.4 criteria. The proposal will not unduly degrade or endanger the marine environment and the disposal will present: no unacceptable adverse effects on human health and no significant damage to the resources of the marine environment; no unacceptable adverse effect on the marine ecosystem; no unacceptable adverse persistent or permanent effects due to the dumping of the particular volumes or concentrations of these materials; and no unacceptable adverse effect on the ocean for other uses as a result of direct environmental impact. See ENSR, 2003.

(ii) 227.5 prohibited materials. The proposed work does not involve the dumping of: high-level radioactive wastes as defined in 40 CFR 227.30; materials in whatever form (including without limitation, solids, liquids, semi-liquids, gases or organisms) produced or used for radiological, chemical, or biological warfare; materials insufficiently described in terms of their compositions and properties to permit application of the environmental impact criteria of this Subpart B; persistent inert synthetic or natural materials which may float or remain in suspension in the ocean in such manner that they may interfere materially with fishing, navigation, or other legitimate uses of the ocean. See ENSR, 2003.

(iii) 227.6 prohibited constituents. The ocean dumping or transportation of dumping of materials containing the following constituents at paragraphs (1)-(5) below as other than trace contaminants is prohibited.

(1) Organohalogen compounds. The mitigation site sediment was found to contain "J" flagged levels of alpha chlordane and 2,4'-DDE. The barge canal sediment was found to contain "J" flagged levels of 2,4'-DDE and endosulfan II. Only alpha-chlordane has a sediment screening criterion (ERL of 0.5 ug/kg). The flagged level of alpha-chlordane in the site sediment (0.38 ug/kg) is less than the screening criterion and should be considered trace. The mitigation site sediment shows low levels of 3 PCB congeners. The detected levels are similar to the reference used for the mitigation site sampling, but higher than the reference used for the Jekyll Creek channel sampling. These levels are also lower than those exhibited by the Jekyll Creek channel sediments. These levels are below screening levels and should be considered trace.

(2) Mercury and mercury compounds. Neither the mitigation site sediment nor the barge canal sediment showed any mercury. Both composites were <0.05 mg/kg. Mercury levels should be considered no greater than trace.

(3) Cadmium and cadmium compounds. Cadmium was found in low levels of about 0.6 mg/kg in both the mitigation site and barge channel sediments. These levels are below the Village Creek reference, but not the Blackbank tributary reference used for the Jekyll Creek study, which showed <0.29 mg/kg. However, the detected levels are below the screening criterion (ERL of 1.2 mg/kg) and should be considered trace.

(4) Oil of any kind or in any form. Neither the mitigation site sediment nor the barge canal sediment showed detectable levels of any petroleum hydrocarbon. Levels of hydrocarbons in the mitigation site sediments should be considered no higher than trace. Some PAHs were found at "J" flagged levels in both the mitigation site and barge canal sediments. These levels are well below screening criteria and should be considered trace.

(5) Known carcinogens, mutagens, or teratogens, or materials suspected by responsible scientific opinion to be carcinogens, mutagens, or teratogens. There is no

reason to believe such substances would be present in the subject sediments, other than dioxins. Dioxins are present in the Jekyll Creek channel sediments in only very small amounts well below levels of concern. Tables 6-8 show past dioxin data for Jekyll Creek. These levels should be considered trace. Since mitigation site sediments are derived from Jekyll Creek, discussions between Savannah District and EPA staff concluded that testing of mitigation site sediments for dioxins was not deemed necessary.

(6) In summary, these constituents are considered to be present as trace contaminants since they are present in such forms and amounts that dumping of the materials will not cause significant undesirable effects, including the possibility of danger associated with their bioaccumulation in marine organisms based on criteria at 40 CFR 227.6(c) (see ENSR, 2003, Chapter 5, for a discussion of the Jekyll Creek channel sediments, which in general show higher levels of trace contaminants that the mitigation site sediments). ENSR discusses in detail the detection of mercury and PCB, both contaminants prohibited as other than trace (ENSR, 2003, Chapter 5, Section 5.3.4). They note that although some bioaccumulation of both contaminants was demonstrated, the levels are well below levels of concern.

(iv) 227.9 Limitations on quantities. No substances are present in the subject sediments which may damage the ocean environment due to the quantities in which they are dumped, or which may seriously reduce amenities.

(v) 227.10 hazards. The proposed sediments do not contain wastes which may present a serious obstacle to fishing or navigation nor a hazard to shorelines or beaches.

(vi) 227.13 dredged material. The subject sediments were tested for physical and chemical parameters and these results compared to the results for testing of the Jekyll Creek channel sediments that were tested in accordance with 40 CFR 227.32. The sediments were found to be environmentally acceptable for ocean dumping in accordance with 40 CFR 227.13(c)(1) and (2).

b. Compliance with Part 227 subpart C – Need for Ocean Dumping.

(1) There are no practical improvements which can be made in process technology or in overall waste treatment to reduce the adverse impacts of the waste on the total environment.

(2) There are no practicable alternative locations and methods of disposal or recycling available, including without limitation, storage until treatment facilities are completed, which have less adverse environmental impact or potential risk to other parts of the environment than ocean dumping. Disposing of the excavated sediment has become problematical. The material could potentially be put on Andrews Island, but this would be much more expensive than disposal in the Brunswick Harbor ODMDS.

c. Compliance with Part 227 subpart D – Impact of the Proposed Dumping on esthetic, Recreational and Economic Values. The proposed disposal will have no more than minor impacts on esthetic, recreational and economic values based on the following considerations. Considering the factors listed at 40 CFR Part 227.18, there is little or no potential for affecting recreational use and values of ocean waters, inshore waters, beaches or shorelines, and recreational and commercial values of living marine resources. Full consideration will be given to responsible public concern for the consequences of the proposed dumping and the consequences of not authorizing the dumping including

without limitation, the impact on esthetic, recreational and economic values with respect to the municipalities and industries involved.

d. Compliance with part 227 subpart E – Impact of the Proposed Dumping on other Uses of the Ocean.

(i) No potential for long-range impact on other uses of the ocean has been identified.

(ii) This evaluation is based on an evaluation of the potential for effects of this proposed disposal activity on specific uses of the ocean including commercial fishing in open ocean areas, commercial fishing in coastal areas, commercial fishing in estuarine areas, recreational fishing in open ocean areas, recreational fishing in coastal areas, recreational fishing in estuarine areas, recreational use of shorelines and beaches, commercial navigation, recreational navigation, actual or anticipated exploitation of living marine resources, actual or anticipated exploitation of non-living resources, and scientific research and study. This assessment considers both temporary and long-range effects, and finds that there will not be any irreversible or irretrievable commitment of resources that would result from the proposed dumping.

6. Requirements (Management Options) to meet Ocean Disposal Criteria. None required.

7. Requirements of Site Designation Conditions. Hydrographic surveys will be performed before and after the disposal activity is finished.

8. MPRSA Section 103 Conditions. None required.

F. Summary Documentation – Jekyll Creek AIWW Channel

1. Dredging and Disposal Project Information.

a. Map showing the location of the wetland mitigation site is shown in Figure 1-2 (ENSR, 2003).

b. Core boring logs keyed to the map. See Appendices A and B (ENSR, 2003).

c. Volume of Material to be Dredged. It is estimated that in order to maintain the Jekyll Creek reach at design depth, approximately 500,000 to 600,000 cu. yds. would be dredged every two years and transported to the Brunswick Harbor ODMDS for disposal.

d. Percentages of fine, medium and coarse-grained material by dredging unit. Sediments tested from the southern end of the Jekyll Creek south reach contain about 52 percent sand, 7 percent silt, and 41 percent clay. The composite of two south channel samples shows sediments from the south channel section average about 39 percent sand 15 percent silt, and 47 percent clay. Data from the northern Jekyll Creek reach show sediments average about 23 percent sand, 18 percent silt, and 59 percent clay. See ENSR, 2003, Appendix B. Maps with sample locations for the Jekyll Creek testing can be found at Figures 1-1, and 1-2 (ENSR, 2003).

e. Bathymetric information for the channel to be dredged. The latest condition survey was conducted in January 2004. It showed the minimum depth for the Jekyll Creek channel to be 6.5 feet MLLW.

f. Design depth and width. The design depth for the AIWW channel is –12 MLW plus 2 ft. of overdepth allowed. The design width is 150 feet. The north segment is approximately 29,000 ft. long and the south segment is approximately 15,000 ft. long.

g. Expected methods of dredging, transport, and disposal of material. Dredging would be by hopper dredge, mechanical clamshell or bucket dredge, with transport by dump barge to the Brunswick ODMDS.

h. Expected start, duration and end of dredging, transport and disposal of material. Dredging, transport, and disposal may occur at any time of the year. Depending on method, dredging could take 30 to 90 days.

i. Location of placement of dredged material at the ODMDS. It is expected that placement would most likely occur within the southern half of the Brunswick ODMDS. No placement would be allowed above –25 ft. mlw.

j. Compliance with ODMDS site designation conditions (if available). The EIS states that impacts will be restricted to site boundaries. Pre and post bathymetric surveys will be completed to document that placement occurs within the site boundaries.

2. Exclusionary Criteria and Need for Testing Documentation.

(i). Rationale for meeting exclusionary criteria. Subject sediments were found to not meet the exclusionary criteria at 40 CFR 227.13: (1) sediments from the AIWW channel contain predominantly fine grained materials: a composite of four samples from the north channel segment showed an average of about 22.8 percent sand, while a composite of two samples from the south channel shows an average of about 38.8 percent sand. The sediments in the Jekyll Creek AIWW channel proposed for disposal were therefore recently tested in accordance with 40 CFR 227.13(c) (ENSR, 2003).

(ii). Locations (keyed to a map), quantities and types of pollutants discharged upstream of the dredging area (if available). None available.

(iii). Grain sizes of the dredged material. See 1(d) above.

(iv). Results and dates of previous testing (if available). Bulk sediment and elutriate testing of the Jekyll Creek reach is described in the EIS for the AIWW (U.S. Army Engineer District, Savannah, 1976). More comprehensive testing of Jekyll Creek sediment was conducted in August 2002. Table 15 shows the results of the same or similar tests conducted at both times. Mercury appears to have been higher during the 1975 testing. The results of the oil and grease test in 1975 and the total petroleum test in 2002 are not directly comparable. However, the results hint that petroleum hydrocarbons may have been higher in 1975. No significant concerns were identified in 1975. No significant concerns were identified during the 2002 testing, as discussed in ENSR, 2003.

Table 15. Sediment Testing Results (ppm unless otherwise noted)

	Grain Size/%sand	TKN	Oil and Grease/TPH	Mercury	Lead	Zinc
1975*1	Silt	4200	9400/	1	25	71
JN*2	.7-19.8%	960-3400	/<71	0.07-0.15	13-32	34-62
JS*3	5.3-51.5%	600-2100	/<59	0.02-0.18	6.5-17	16-42

*1 One sample from Jekyll Creek north reach at about Station 13+000

*2 Four samples from Jekyll Creek north reach, 2002

*3 Two samples from Jekyll Creek south reach, 2002

(v). Dates of previous dredging. The Jekyll Creek north channel segment was dredged about every 2 years through 1999. The south channel segment has rarely been dredged.

3. Water – Column Determinations (Tiers II-IV). These determinations are based on recent testing of Jekyll Creek sediments.

a. Limiting Permissible Concentration Compliance Documentation

(i) Results of the ADDAMS model. In compliance. See ENSR, 2003, Chapter 5.

(ii) Comparison with water quality criteria. In compliance. See ENSR, 2003, Chapter 5.

b. Water – Column Toxicity Evaluation. In compliance. See ENSR, 2003, Chapter 5.

c. Water – Column Testing Report. In compliance. See ENSR, 2003, Chapter 5.

4. Benthic Determinations (Tiers II-IV). These determinations are based on recent testing of Jekyll Creek sediments.

a. Benthic Toxicity Evaluation. In compliance. See ENSR, 2003, Chapter 5.

b. Benthic Bioaccumulation Evaluation. In compliance. See ENSR, 2003, Chapter 5.

(i) Theoretical Bioaccumulation Potential. In compliance. See ENSR, 2003, Chapter 5.

(ii) Benthic Bioavailability Evaluation. In compliance. See ENSR, 2003, Chapter 5.

c. Sediment Testing Report. No significant concerns identified. See ENSR, 2003.

5. MPRSA Section 103 Ocean Disposal Criteria Compliance Evaluation.

a. Compliance with Part 227 Subpart B – Environmental Impact.

(i) 227.4 criteria. The proposal will not unduly degrade or endanger the marine environment and the disposal will present: no unacceptable adverse effects on human health and no significant damage to the resources of the marine environment; no unacceptable adverse effect on the marine ecosystem; no unacceptable adverse persistent or permanent effects due to the dumping of the particular volumes or concentrations of these materials; and no unacceptable adverse effect on the ocean for other uses as a result of direct environmental impact. See ENSR, 2003.

(ii) 227.5 prohibited materials. The proposed work does not involve the dumping of: high-level radioactive wastes as defined in 40 CFR 227.30; materials in whatever form (including without limitation, solids, liquids, semi-liquids, gases or organisms) produced or used for radiological, chemical, or biological warfare; materials insufficiently described in terms of their compositions and properties to permit application of the environmental impact criteria of this Subpart B; persistent inert synthetic or natural materials which may float or remain in suspension in the ocean in such manner that they may interfere materially with fishing, navigation, or other legitimate uses of the ocean. See ENSR, 2003.

(iii) 227.6 prohibited constituents. The ocean dumping or transportation of dumping of materials containing the following constituents at paragraphs (1)-(5) below as other than trace contaminants is prohibited.

(1) Organohalogen compounds (see Table 11, sediment PCBs). The Jekyll north sediment composite contained PCB congener 126 at 0.46 ppb P, 187 at 1.5 ppb P, 206 at 7.2 ppb, and 209 at 1.6 ppb. The south segment sediment composite contained PCB congener 126 at 1.2 ppb P, 180 at 0.77 ppb, 187 at 4.1 ppb P, 206 at 28 ppb, 209 at 5.8 ppb and total PCB at 47.33 ppb. Although individual samples from the north segment showed higher PCB levels (with 2 of the 4 samples above the ERL for total PCBs), total PCBs for the north segment composite was 13.84 ug/kg, below the ERL of 22.7 ug/kg. Total PCBs in the north channel segment should therefore be considered trace. However, because some sediment samples from the north segment showed higher total PCB levels, bioaccumulation of total PCBS in the north channel sediments is considered later in this paragraph. The Jekyll Creek south samples also showed variability in the PCB results, but the total PCBs level in the south channel composite was much higher at 47.33 ug/kg. Because the sediment level of total PCBs was above the ERL, the tissue levels of PCB congeners are considered (see Tables 12 and 13). Calculated total PCBs were the result of all non-detect values in the initial tissues and reference for *Macoma*. *Nereis* values include low levels of some congeners. The north channel composite had one analysis, which showed *Macoma* tissue to have 6.7 ug/kg total PCBs vs. 5.2 ug/kg total PCBs for the reference, and *Nereis* tissue to have 9.3 ug/kg total PCBs vs. 9.1 total PCBs for the reference. The south channel composite replicates for *Macoma* showed an average PCB total of 7.0, vs. reference and initial values of 5.2 ug/kg. *Nereis* showed an average of 8.6 ug/kg, vs. reference average of 9.1 ug/kg and initial average of 9.2 ug/kg. All of these results are well below the FDA action level of 2 ppm (ENSR, 2003) and should therefore be considered trace.

Neither channel segment composite contained sediment with unflagged levels of any organochlorine pesticide (see Table 7, above). Several pesticides occurred in the composites at estimated levels of less than 0.3 ug/kg (see ENSR, 2003, Table 4-1). These sediment levels should be considered trace. By prior arrangement with EPA staff, because of the low sediment pesticide levels, tissues were not analyzed for pesticides. These sediment levels should be considered trace. No concerns exist for contaminant related impacts due to pesticide levels in the Jekyll Creek channel sediments.

Sediment composites from both Jekyll Creek channel segments contained small amounts of various dioxin congeners. Dioxin data for Jekyll Creek are summarized in Tables 16 and 17. TEQs are shown in Table 18. TEQ for the north segment was 5.6 pptr and for the south segment was 3.4 pptr. These results do not represent levels of concern and were not remarkably different from the Blackbank tributary reference value of 2.2 pptr TEQ, with the derivation from mostly non-detect values. The contractor derived these values using 0.5 times the detection limit for non-detects. Using the detection limit for non-detects (as a worst case), the reference area showed a sediment TEQ of 3.98 pptr and a TBP value (1.5 percent lipid and BSAF of 1) of 3.34 pptr TEQ. The Jekyll North composite showed a sediment TEQ of 10.13 and a TBP (1.5 percent and BASF of 1) of 6.36 pptr TEQ, and the south channel composite showed a sediment TEQ of 6.02 pptr

and a TBP of 5.64 pptr TEQ. Other Jekyll creek TBPs (earlier Jekyll Creek reference values) have been 2.17, 4.04, 5.93, and 10.64 pptr TEQ. These data appear to indicate that worst-case calculations show little difference between project and reference values. The concentrations of dioxin congeners are very low and can be considered trace. Through earlier discussions with EPA staff it was determined that there was no concern for dioxins and no need to conduct tissue analyses for dioxin congeners.

Table 16. Dioxin Congeners (parts per trillion) Jekyll Creek Reference Area and Channel Sediment

Table 6

Isomer	TEF	Brn	Latham	USCG	GPwr	GPA	GPA	Brn-O&M	Brn-O&M	ENSR	ENSR	ENSR
		Deep	River	Ref	P McMa	May Pt	Col I	103	103	Ref	Jek C	Jek C
		J Ref*	J Ref*	J Ref*	J Ref*	J Ref*	J Ref*	J Ref*	BB Trib*	BB Trib*	N	S
		X-3	X-5	Ref	Ref-1	Ref-1	B-1	I Ref	OR	JK Ref	JNC1234	JS1JS2
		9-Sep-95	18-Sep-96	16-Mar-98	19-Aug-98	31-Aug-98	2-Jul-99	25-Jul-01	26-Jul-01	2-Aug-02	2-Aug-02	2-Aug-02
2,3,7,8-TCDD	1.0000	0.8	0.4	**0.76**	**0.55**	**0.353**	**0.53**	0.12	0.18	0.36	1.2	0.88
2,3,7,8-TCDF	0.0500	0.7	0.7	**2.4**	**2.17**	**1.12**	**3.7**	0.37	0.36	0.67	4.5	3.5
1,2,3,7,8,-PeCDD	1.0000	1.2	0.5	**2.6**	**1.32**	**0.889**	**1.9**	0.47	1.1	1.6	3.7	1.1
1,2,3,4,7,8-HxCDD	0.5000	2.3	1.1	**5.5**	**1.92**	**1.43**	**3.5**	0.71	1.3	2.4	4.6	3
1,2,3,6,7,8-HxCdd	0.0100	2	**1.2**	**6.5**	**2.99**	**2.44**	**6.1**	1.4	2.1	4.4	7.9	4
1,2,3,7,8,9-HxCDD	0.0200	**4.3**	**3.1**	**16.6**	**7.23**	**5.46**	**16.1**	**3**	**5.2**	**9.7**	**17**	**10**
1,2,3,4,6,7,8-HpCDD	0.0010	**40.8**	**31.8**	**155**	**60.1**	**48.8**	**138**	**30**	**50**	**110**	**200**	**170**
OCDD	0.0001	**531**	**293**	**1610**	**467**	**350**	**1410**	**290**	**460**	**1200**	**2200**	**1500**
1,2,3,7,8-PeCDF	0.0500	0.9	0.4	0.6	0.422	0.218	**1.5**	0.17	0.15	0.36	1.9	1.6
2,3,4,7,8-PeCDF	0.5000	0.9	0.4	0.6	0.371	**0.24**	**1.4**	0.15	0.14	0.28	1.7	1.3
1,2,3,4,7,8-HxCDF	0.1000	1.8	**0.62**	**2.4**	0.683	**0.434**	**3.2**	0.39	0.24	0.63	3.3	4.2
1,2,3,6,7,8-HxCDF	0.1000	1.3	0.6	**0.8**	0.3	**0.162**	**1.2**	0.12	0.13	0.28	1.5	1.2
2,3,4,6,7,8-HxCDF	0.1000	1.7	**0.74**	**1.9**	0.455	**0.27**	**2.1**	0.19	0.17	0.38	2.5	3
1,2,3,7,8,9-HxCDF	0.1000	1.9	0.8	0.9	0.0756	0.0737	0.21	0.12	0.16	0.08	0.66	0.95
1,2,3,4,6,7,8-HpCDF	0.0100	1.5	**1.3**	**7.4**	**2.39**	**1.23**	**8.3**	1.2	1.1	2.3	**11**	**13**
1,2,3,4,7,8,9-HpCDF	0.0100	2.4	1.3	1.1	0.186	**0.106**	**0.7**	0.21	0.22	0.18	1.3	0.81
OCDF	0.0001	3.9	5	**6.2**	**3.59**	**0.641**	**4.4**	1.4	1.2	3.5	12	**13**
TOC ppm		6470	7980	29500	23725	6245	45000	13500	28000	17900	23900	16000
%Fines		27.6	41.6	67.25	88.9	65.6	60.16	28.1	48.2	63.9	77.1	61.4

Bold numbers indicate reported concentration or "J" flag. Regular numbers are non-detect DL, EMPC (estimated maximum possible concentration), or COM (compound confirmed).

* J Ref refers to the reference area in Jekyll Creek, BB Trib refers to the reference area in a tributary to the Blackbank River on St. Simons I.

Table 17. Dioxin TEQs (parts per trillion) Jekyll Reference Area and Channel Sediment, RL Used for Non-Detects

Isomer	TEF	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ
Incl DLs		Brn	Latham	USCG	GPwr	GPA	GPA	Brn-O&M	Brn-O&M	ENSR	ENSR	ENSR
		Deep		Ref	P McMa	May Pt	Col I	103	103	Ref	Jek C	Jek C
		J Ref	J Ref	Ref	J Ref	J Ref	J Ref	J Ref	BB Trib	BB Trib	N	S
		X-3	X-5	Ref	Ref-1	Ref-1	B-1	I Ref	OR	JK Ref	JNC1234	JS1JS2
		9-Sep-95	18-Sep-96	16-Mar-98	19-Aug-98	31-Aug-98	2-Jul-99	25-Jul-01	26-Jul-01	2-Aug-02	2-Aug-02	2-Aug-02
2,3,7,8-TCDD	1.0000	0.80	0.40	**0.76**	**0.55**	**0.35**	**0.53**	0.12	0.18	0.36	1.20	0.88
2,3,7,8-TCDF	0.0500	0.04	0.04	**0.12**	**0.11**	**0.06**	**0.19**	0.02	0.02	0.03	0.23	0.18
1,2,3,7,8,-PeCDD	1.0000	1.20	0.50	**2.60**	**1.32**	**0.89**	**1.90**	0.47	1.10	1.60	3.70	1.10
1,2,3,4,7,8-HxCDD	0.5000	1.15	0.55	**2.75**	**0.96**	**0.72**	**1.75**	0.36	0.65	1.20	2.30	1.50
1,2,3,6,7,8-HxCdd	0.0100	0.02	0.01	**0.07**	**0.03**	**0.02**	**0.06**	0.01	0.02	0.04	0.08	0.04
1,2,3,7,8,9-HxCDD	0.0200	**0.09**	**0.06**	**0.33**	**0.14**	**0.11**	**0.32**	**0.06**	**0.10**	**0.19**	**0.34**	**0.20**
1,2,3,4,6,7,8-HpCDD	0.0010	**0.04**	**0.03**	**0.16**	**0.06**	**0.05**	**0.14**	**0.03**	**0.05**	**0.11**	**0.20**	**0.17**
OCDD	0.0001	**0.05**	**0.03**	**0.16**	**0.05**	**0.04**	**0.14**	**0.03**	**0.05**	**0.12**	**0.22**	**0.15**
1,2,3,7,8-PeCDF	0.0500	0.05	0.02	0.03	0.02	0.01	**0.08**	0.01	0.01	0.02	0.10	0.08
2,3,4,7,8-PeCDF	0.5000	0.45	0.20	0.30	0.19	**0.12**	**0.70**	0.08	0.07	0.14	0.85	0.65
1,2,3,4,7,8-HxCDF	0.1000	0.18	0.06	0.24	0.07	**0.04**	**0.32**	0.04	0.02	0.06	0.33	0.42
1,2,3,6,7,8-HxCDF	0.1000	0.13	0.06	0.08	0.03	**0.02**	**0.12**	0.01	0.01	0.03	0.15	0.12
2,3,4,6,7,8-HxCDF	0.1000	0.17	0.07	0.19	0.05	**0.03**	**0.21**	0.02	0.02	0.04	0.25	0.30
1,2,3,7,8,9-HxCDF	0.1000	0.19	0.08	0.09	0.01	0.01	0.02	0.01	0.02	0.01	0.07	0.10
1,2,3,4,6,7,8-HpCDF	0.0100	0.02	**0.01**	**0.07**	**0.02**	**0.01**	**0.08**	0.01	0.01	0.02	**0.11**	**0.13**
1,2,3,4,7,8,9-HpCDF	0.0100	0.02	0.01	0.01	0.00	**0.00**	**0.01**	0.00	0.00	0.00	0.01	0.01
OCDF	0.0001	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	0.00	0.00	0.00	0.00	**0.00**
Total TEQ		4.59	2.14	7.96	3.60	2.47	6.56	1.28	2.33	3.98	10.13	6.02
TOC ppm		6,470	7,980	29,500	23,725	6,245	45,000	13,500	28,000	17,900	23,900	16,000
TBP1.5%		10.64	4.03	4.05	2.28	5.93	2.19	1.42	1.25	3.34	6.36	5.64
%Fines		27.6	41.6	67.25	88.9	65.6	60.16	28.1	48.2	63.9	77.1	61.4

Bold numbers indicate reported concentration or "J" flag. Regular numbers are non-detect DL, EMPC (estimated maximum possible concentration), or COM (compound confirmed).

Table 18. Dioxin TEQs (parts per trillion) Jekyll Reference Area and Channel Sediment, 0.5(RL) Used for Non-detects

Isomer	TEF	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ	TEQ
Incl DLs		Brn	Latham	USCG	GPwr	GPA	GPA	Brn-O&M	Brn-O&M	ENSR	ENSR	ENSR
		Deep		Ref	P McMa	May Pt	Col I	103	103	Ref	Jek C	Jek C
		J Ref	J Ref	Ref	J Ref	J Ref	J Ref	J Ref	BB Trib	BB Trib	N	S
		X-3	X-5	Ref	Ref-1	Ref-1	B-1	I Ref	OR	JK Ref	JNC1234	JS1JS2
		9-Sep-95	18-Sep-96	16-Mar-98	19-Aug-98	31-Aug-98	2-Jul-99	25-Jul-01	26-Jul-01	2-Aug-02	2-Aug-02	2-Aug-02
2,3,7,8-TCDD	1.0000	0.40	0.20	**0.76**	**0.55**	**0.35**	**0.53**	0.06	0.09	0.18	0.60	0.44
2,3,7,8-TCDF	0.0500	0.02	0.02	**0.12**	**0.11**	**0.06**	**0.19**	0.01	0.01	0.02	0.11	0.09
1,2,3,7,8,-PeCDD	1.0000	0.60	0.25	**2.60**	**1.32**	**0.89**	**1.90**	0.24	0.55	0.80	1.85	0.55
1,2,3,4,7,8-HxCDD	0.5000	0.58	0.28	**2.75**	**0.96**	**0.72**	**1.75**	0.18	0.33	0.60	1.15	0.75
1,2,3,6,7,8-HxCdd	0.0100	0.01	0.01	**0.07**	**0.03**	**0.02**	**0.06**	0.01	0.01	0.02	0.04	0.02
1,2,3,7,8,9-HxCDD	0.0200	**0.09**	**0.06**	**0.33**	**0.14**	**0.11**	**0.32**	**0.06**	**0.10**	**0.19**	**0.34**	**0.20**
1,2,3,4,6,7,8-HpCDD	0.0010	**0.04**	**0.03**	**0.16**	**0.06**	**0.05**	**0.14**	**0.03**	**0.05**	**0.11**	**0.20**	**0.17**
OCDD	0.0001	**0.05**	**0.03**	**0.16**	**0.05**	**0.04**	**0.14**	**0.03**	**0.05**	**0.12**	**0.22**	**0.15**
1,2,3,7,8-PeCDF	0.0500	0.02	0.01	0.02	0.01	0.01	**0.08**	0.00	0.00	0.01	0.05	0.04
2,3,4,7,8-PeCDF	0.5000	0.23	0.10	0.15	0.09	**0.12**	**0.70**	0.04	0.04	0.07	0.43	0.33
1,2,3,4,7,8-HxCDF	0.1000	0.09	0.03	0.12	0.03	**0.04**	**0.32**	0.02	0.01	0.03	0.17	0.21
1,2,3,6,7,8-HxCDF	0.1000	0.07	0.03	0.04	0.02	**0.02**	**0.12**	0.01	0.01	0.01	0.08	0.06
2,3,4,6,7,8-HxCDF	0.1000	0.09	0.04	0.10	0.02	**0.03**	**0.21**	0.01	0.01	0.02	0.13	0.15
1,2,3,7,8,9-HxCDF	0.1000	0.10	0.04	0.05	0.00	0.00	0.01	0.01	0.01	0.00	0.03	0.05
1,2,3,4,6,7,8-HpCDF	0.0100	0.01	**0.01**	**0.07**	**0.02**	**0.01**	**0.08**	0.01	0.01	0.01	**0.11**	**0.13**
1,2,3,4,7,8,9-HpCDF	0.0100	0.01	0.01	0.01	0.00	**0.00**	**0.01**	0.00	0.00	0.00	0.01	0.00
OCDF	0.0001	0.00	0.00	0.00	**0.00**	**0.00**	**0.00**	0.00	0.00	0.00	0.00	**0.00**
Total TEQ		2.38	1.14	7.49	3.42	2.46	6.55	0.70	1.26	2.20	5.50	3.34
TOC ppm		6,470	7,980	29,500	23,725	6,245	45,000	13,500	28,000	17,900	23,900	16,000
TBP1.5%		10.64	4.03	4.05	2.28	5.93	2.19	1.42	1.25	3.34	6.36	5.64
%Fines		27.6	41.6	67.25	88.9	65.6	60.16	28.1	48.2	63.9	77.1	61.4

Bold numbers indicate reported concentration or "J" flag. Regular numbers are non-detect DL, EMPC (estimated maximum possible concentration), or COM (compound confirmed).

(2) Mercury and mercury compounds. The north channel segment sediment composite was found to contain 0.077 ppm (dry wt) mercury, and the south segment sediment composite was found to contain 0.099 ppm (dry wt) mercury, whereas the reference area showed mercury as estimated at 0.021 ppm. These levels are all below sediment screening criteria (the ER-L for mercury of 0.15 mg/kg) and can be considered trace. Table 2 summarizes reported metal concentrations in sediments. To verify the lack of concern for mercury concentrations in the project channel sediments, bioaccumulation analyses were done by ENSR. Tables 14 –17 in ENSR (2003) show their tissue results. These results are summarized here. *Macoma* wet tissue results for the north segment (0.005, 0.005, 0.006, 0.005, 0.005 ppm) were slightly lower than initial tissues (0.006, 0.006, 0.007 ppm), and slightly higher than reference tissues (0.005, <0.004, <0.004, 0.004, <0.004 ppm). *Nereis* wet tissue results for the north segment (0.017, 0.018, 0.017, 0.018, 0.017 ppm) were slightly higher than initial tissues (0.008, 0.01, 0.01 ppm) and slightly higher than reference tissues (0.014, 0.011, 0.012, 0.014, 0.014 ppm). Only one replicate was conducted for the south channel sediment. The *Macoma* wet tissue level (0.008 ppm) and *Nereis* wet tissue level (0.02 ppm) were both slightly above initial tissue values and the reference values. ENSR points out these levels are well below the FDA action level (1 ppm)(ENSR, 2003, Chapter 5, Section 5.3.4). Therefore, no contaminant concerns exist related to the level of mercury in the project sediments.

(3) Cadmium and cadmium compounds. Neither sediment composite from either reach contained detectable levels of cadmium.

(4) Oil of any kind or in any form. Neither sediment composite from either reach contained detectable levels of petroleum hydrocarbons.

(5) Known carcinogens, mutagens, or teratogens, or materials suspected by responsible scientific opinion to be carcinogens, mutagens, or teratogens. There is no reason to believe such substances would be present in the subject sediments, other than dioxins. The dioxins are present in only very small amounts (see discussion at paragraph (1), organohalogen compounds, above).

(6) These constituents are all considered to be present as trace contaminants since they are present in such forms and amounts that dumping of the materials will not cause significant undesirable effects, including the possibility of danger associated with their bioaccumulation in marine organisms based on criteria at 40 CFR 227.6(c) (see ENSR, 2003, Chapter 5). ENSR discusses in detail the detection of mercury and PCB, both contaminants prohibited as other than trace (ENSR, 2003, Chapter 5, Section 5.3.4). They note that although some bioaccumulation of both contaminants was demonstrated, the levels are well below levels of concern.

(iv) 227.9 Limitations on quantities. No substances are present in the subject sediments which may damage the ocean environment due to the quantities in which they are dumped, or which may seriously reduce amenities.

(v) 227.10 hazards. The proposed sediments do not contain wastes which may present a serious obstacle to fishing or navigation nor a hazard to shorelines or beaches.

(vi) 227.13 dredged material. The subject sediments were tested in accordance with 40 CFR 227.32. The sediments were found to be environmentally acceptable for ocean dumping in accordance with 40 CFR 227.13(c)(1) and (2).

b. Compliance with Part 227 subpart C – Need for Ocean Dumping.

(1) There are no practical improvements which can be made in process technology or in overall waste treatment to reduce the adverse impacts of the waste on the total environment.

(2) There are no practicable alternative locations and methods of disposal or recycling available, including without limitation, storage until treatment facilities are completed, which have less adverse environmental impact or potential risk to other parts of the environment than ocean dumping. Disposing of sediments excavated from Jekyll Creek has become problematical. The GADNR has indicated that placement of sediments excavated from Jekyll Creek in unconfined AIWW disposal tracts adjacent to the creek is unacceptable. There are currently no practicable available alternatives.

c. Compliance with Part 227 subpart D – Impact of the Proposed Dumping on Esthetic, Recreational and Economic Values. The proposed disposal will have no more than minor impacts on esthetic, recreational and economic values based on the following considerations. Considering the factors listed at 40 CFR Part 227.18, there is little or no potential for affecting recreational use and values of ocean waters, inshore waters, beaches or shorelines, and recreational and commercial values of living marine resources. Full consideration will be given to responsible public concern for the consequences of the proposed dumping and the consequences of not authorizing the dumping including without limitation, the impact on esthetic, recreational and economic values with respect to the municipalities and industries involved.

d. Compliance with part 227 subpart E – Impact of the Proposed Dumping on other Uses of the Ocean.

(i) No potential for long-range impact on other uses of the ocean has been identified.

(ii) This evaluation is based on an evaluation of the potential for effects of this proposed disposal activity on specific uses of the ocean including commercial fishing in open ocean areas, commercial fishing in coastal areas, commercial fishing in estuarine areas, recreational fishing in open ocean areas, recreational fishing in coastal areas, recreational fishing in estuarine areas, recreational use of shorelines and beaches, commercial navigation, recreational navigation, actual or anticipated exploitation of living marine resources, actual or anticipated exploitation of non-living resources, and scientific research and study. This assessment considers both temporary and long-range effects, and finds that there will not be any irreversible or irretrievable commitment of resources that would result from the proposed dumping.

6. Requirements (Management Options) to meet Ocean Disposal Criteria. None required.

7. Requirements of Site Designation Conditions. Hydrographic surveys will be performed before and after the disposal activity is finished.

8. MPRSA Section 103 Conditions. None required.

G. References

Dial Cordy and Associates, Inc., 2003. Draft Evaluation of Sediments, Wetland Mitigation Site, Brunswick Harbor Deepening Project, Jekyll Island, Georgia. Prepared for: Savannah District, U.S. Army Corps of Engineers, Savannah, GA 31402. December, 2003.

ENSR, 2003. Jekyll Creek O&M Sediment Evaluation, prepared by ENSR International, Contract GS-10-F-0115K, Order No. DACW21-02-F-0034, Final Report, April 2003.

U.S. Army Engineer District, Savannah. 1976. Final Environmental Impact Statement. Atlantic Intracoastal Waterway (Port Royal Sound, South Carolina to Cumberland Sound, Florida). U.S. Army Engineer District, Savannah Corps of Engineers, Savannah, Georgia, January 1976.

U.S. Army Engineer District, Savannah. 1983. Atlantic Intracoastal Waterway (AIWW) Maintenance Program Evaluation Study, February 1983.

USACE and EPA, 1993. Regional Implementation Manual, Requirements and Procedures for Evaluation of the Ocean Disposal of Dredged Material in Southeastern Atlantic and Gulf Coastal Waters. U.S. Army Corps of Engineers, South Atlantic Division and U.S. Environmental Protection Agency, Region IV. May, 1993.

APPENDIX E

Section 404(B)(1) Evaluation of Dredged and Fill Material

SECTION 404(B)(1) EVALUATION

FOR

BRUNSWICK HARBOR DEEPENING PROJECT, GLYNN COUNTY, GA

PROPOSED MODIFICATION OF THE WETLAND MITIGATION PLAN

December 2006

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SECTION 404(B)(1) EVALUATION
OF DREDGE AND FILL MATERIAL

Brunswick Harbor Deepening Project, Glynn County, Georgia Proposed Modification of the Wetland Mitigation Plan

1.0 INTRODUCTION

The following evaluation is prepared in accordance with Section 404(b)(1) of the Clean Water Act of 1977 to evaluate the environmental effects of the proposed placement of dredged or fill material in waters of the United States. Specific portions of the regulations are cited and an explanation of the regulation is given as it pertains to the project. These guidelines can be found in Title 40, Part 230 of the Code of Federal Regulations.

2.0 PROPOSED ACTION AND ENVIRONMENTAL SETTING

2.1 PROPOSED ACTION

The proposed work as originally advertised was to modify the Brunswick Harbor Deepening Wetland Mitigation Plan to allow construction of temporary barge access and to allow placement of excavated sediment in the Brunswick Harbor Ocean Dredged Material Deposal Site (ODMDS). Comments received on the draft EA and cost projections led to a decision to consider a further modification to the project to reduce potential wetland impacts and required wetland mitigation. The selected alternative is to modify the Brunswick Harbor Deepening Project to include enlargement of the existing East River Turning Basin, rather than construction of a new turning basin, thereby reducing proposed wetland impacts from 18.1 acres to 7.3 acres, and reducing wetland mitigation requirements from 59.4 acres to 16.7 acres. Details on each alternative are provided in the Final EA to which this evaluation is an appendix. Details concerning proposed on-site mitigation can also be found in the Final EA for this proposal.

Specific actions subject to Section 404 jurisdiction include excavation of 5.9 acres of salt marsh for expansion of the turning basin, excavation of 0.4 acres of salt marsh for ditching to the mitigation areas, and 1.0 acre of salt marsh for construction of pipe ramps and weirs. Specific details on the proposed wetland impacts can be found in an attachment to the EA entitled "Wetland SOP Compliance".

2.2 ENVIRONMENTAL SETTING

2.2.1 General Description

The originally proposed action would have occurred at the proposed Brunswick Harbor Deepening wetland mitigation site on the west side of the southern end of Jekyll Island adjacent to Jekyll Creek, just south of the Brunswick Harbor Area. The proposed work described in the selected alternative would all occur on Andrews Island and the adjacent East River at Brunswick, Georgia. A more complete description of the project environmental setting can be found in the

1998 Brunswick Deepening Project Section 404(b)(1) Evaluation, Appendix C of the Brunswick Harbor Deepening Project Final Environmental Impact Statement or FEIS (USACE Savannah, 1998), incorporated by reference.

2.2.2 Threatened, Endangered and other Listed Species

The District has determined that the proposed action would have no additional effect on listed species beyond those already in the Biological Assessment of Threatened and Endangered Species (BATES) for the Deepening Project. All operations associated with the proposed modifications would be conducted in accordance with all the conditions that are a part of the Deepening Project.

3.0 SUBPART B - COMPLIANCE WITH THE GUIDELINES

The following objectives should be considered in making a determination of any proposed discharge of dredged or fill material into waters of the United States.

3.1 RESTRICTIONS ON DISCHARGE - (SECTION 230.10)

"(a) ***except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted if there is a practical alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences."***

No other practicable alternative with less environment impacts on the aquatic ecosystem has been identified.

"(b) ***Discharge of dredged material shall not be permitted if it;"***

"(I) ***Causes or contributes, after consideration of disposal dilution and dispersions, to violations of any applicable state water quality standard;"***

"(2) ***Violates any applicable toxic effluent standard or prohibition under Section 370 of the Clean Water Act."***

The proposed modification would consist of approximately the same amount of dredging and fill as approved in the Final EIS. Additional impacts are expected to be minimal. The proposed action is not expected to reduce water quality below applicable toxic effluent standards or violate other prohibitions under Section 307 of the Act. Turbidity at the site could be substantial during construction, but similar to that expected from dredging methods already approved for the project. In addition, this situation would be temporary and localized. A request has been made to the State of Georgia for issuance of a Section 401 - Water Quality Certification for this action.

"(3) ***Jeopardizes the continued existence of species listed as endangered and threatened under the Endangered Species Act of 1973, as amended."***

Endangered Species are addressed in the BATES and FEIS for the Deepening Project. No additional impacts to listed species from the proposed modification have been identified. Conditions in the BATES and FEIS would apply to this modification. No additional action regarding listed species is required.

"(4) ***Violates any requirements imposed by the Secretary of Commerce to protect any marine sanctuary designated under Title Ill of the Marine Protection Research and Sanctuaries Act of 1972."***

No marine sanctuary or other items addressed under this act would be affected by the proposed work.

"(c) ***Except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. Findings of significant degradation related to the proposed discharge shall be based upon appropriate factual determinations, evaluations, and tests required by Subparts B and G of the consideration of Subparts C-F with special emphasis on the persistence and permanence of the effects contributing to significant degradation considered individually or collectively include:"***

"(1) Significantly adverse effects of the discharge of pollutants on human health or welfare including, but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites."

Potential contaminant effects were addressed in the Project FEIS. The proposed dredging for the East River Turning Basin expansion would take place in relatively close proximity to the area originally proposed for a new turning basin. No differences in potential impacts are expected as a result of the proposed modification.

"(2) Significantly adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent upon aquatic ecosystems, Including the transfer, concentration, and spread of pollutants or their by-products outside the disposal site through biological, physical, and chemical processes."

The sediments to be dredged are not considered to contain pollutants at toxic levels. Therefore, provisions of the above paragraph are not expected to be violated.

"(3) Significantly adverse effects of the discharge of pollutants on aquatic ecosystems diversity, productivity, and stability. Such effects may include, but are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy; or"

"(4) Significantly adverse effects of the discharge of pollutants on recreational, aesthetic, and economic values."

Deposition of dredged materials would be in the Andrews Island CDF (previously authorized). No significant adverse effects are anticipated.

"(d) ***Except as provided under Section 404(b)(2), no discharge of dredged or fill material shall be permitted unless appropriate and practical steps have been taken which will minimize the potential adverse impacts of the discharge on the aquatic ecosystem."***

The proposed action would have minimal negative impact on the aquatic ecosystem. In fact, the proposed wetland impacts through excavation have been reduced from 18.1 to 7.3 acres. The proposed work should reduce expected impacts to the aquatic ecosystem.

3.2 FACTUAL DETERMINATION. – (SECTION 230.11)

3.2.1 Physical Substrate Determinations

Consideration shall be given to the similarity in particle size, shape, and degree of compaction of the material proposed for discharge and the material constituting the substrate at the disposal site and any potential changes in substrate elevation and bottom contours.

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). Proposed discharge area (Andrews Island) has received dredged material in the past. Weir effluent discharges are expected to be minimal. The proposed action would not produce additional impacts not already evaluated.

Possible loss of environmental values

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). Materials would be placed in an existing designated dredged material disposal area (Andrews Island), with minimal changes in dredging volumes expected. No more than minimal additional impacts expected.

Actions to minimize impacts

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C. Materials would be placed in existing designated dredged material disposal areas (Andrews Island). The selected plan proposes to minimize potential wetland impacts by redesigning the required turning basin. The existing turning basin will be enlarged, rather than building a new turning basin. This action will reduce proposed wetland impacts through excavation from 18.1 to 7.3 acres.

3.2.2 Water Circulation, Fluctuations, and Salinity Determinations

Consideration shall be given to water chemistry, salinity, clarity, color, odor, taste, dissolved gas levels, temperature, nutrients, and eutrophication plus other appropriate characteristics. Also to be considered are the potential diversion or obstruction of flow, alterations of bottom contours, or other significant changes in the hydrologic regime. Changing the velocity of water flow can result in adverse changes in location, structure, and dynamics of aquatic

communities, shoreline erosion and deposition, mixing rates and stratification, and normal water-level fluctuation patterns. These effects can alter or destroy aquatic communities.

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). No additional impacts expected and no additional action required.

3.2.2.1 Loss of Environmental Value

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). Impacts from proposed dredging volumes are expected to be similar to those already approved. Actual loss of environmental values is expected to be lessened by the proposed work, as it will reduce wetland impacts and increase area of Waters of the U.S. No more than minimal additional negative impacts expected.

3.2.2.2 Actions to Minimize Impacts

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). Impacts from proposed dredging volumes are expected to be similar to those already approved. Actual loss of environmental values is expected to be lessened by the proposed work, as it will reduce wetland impacts and increase area of Waters of the U.S. No more than minimal additional negative impacts expected.

3.2.3 Suspended Particulate/Turbidity Determinations

Effects due to potential changes in the kinds and concentrations of suspended particulate/turbidity in the vicinity of the disposal site. Factors to be considered include grain size, shape and size of any plume generated, duration of the discharge and resulting plume, and whether or not the potential changes will cause violations of applicable water quality standards. Consideration shall include the proposed method, volume, location, and rate of discharge, as well as the individual and combined effects of current patterns, water circulation and fluctuations, wind and wave action, and other physical factors on the movement of suspended particulates.

Sediment characteristics were addressed in the Section 103 Evaluation. No more than minimal additional impacts expected. Currents in the open ocean are expected to dissipate turbidity resulting from the proposed action rapidly. See FEIS, Encl. C.

3.2.3.1 Loss of Environmental Values

Due to reduction in light transmission, reduction in photosynthesis, reduced feeding and growth of sight dependent species, direct destructive effects to nektonic and planktonic species, reduced DO, increased levels of dissolved contaminants, aesthetics.

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). The proposed modification is expected to have minimal additional impacts as the amount of dredging is expected to be similar to that already approved.

3.2.3.2 Actions to Minimize Impacts

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). The proposed modification is expected to have minimal additional impacts as the amount of dredging is expected to be similar to that already approved. Since total wetland impacts are reduced, more wetlands will remain in the area to help reduce suspended particulates and turbidity.

3.2.4 Contamination Determination

Consider the degree to which the proposed discharge will introduce, relocate, or increase contaminants. This determination shall consider the material to be discharged, the aquatic environment at the proposed disposal site, and the availability of contaminants. Consideration of Evaluation and Testing (parts 230.60, and 230.61).

Project sediments have been tested and found to contain no contaminants at levels of concern (see FEIS). Since the proposed modification involves sediments from the same general project area, no additional impacts are expected.

3.2.5 Aquatic Ecosystem and Organism Determinations

Effect on the structure and function of the aquatic ecosystem and organisms and effect on the recolonization and existence of indigenous aquatic organisms or communities.

3.2.5.1 Threatened and Endangered Species

No additional impacts not already addressed in the Deepening Project BATES and FEIS are foreseen. Conditions currently in place for the Deepening Project would apply to the proposed modification.

3.2.5.2 Fish, Crustaceans, Mollusks and other Aquatic Organisms in the Food Web

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). Minimal additional impacts are expected.

3.2.5.3 Other Wildlife

See the Section 404(b)(1) Evaluation for the Deepening Project (FEIS, Encl C). No impacts expected.

3.2.5.4 Special Aquatic Sites

The proposed action would reduce wetland impacts 18.1 to 7.3 acres of salt marsh.

3.2.5.5 Potential Effects on Human Use Characteristics

Some minor temporary impacts are expected due to restricted access to the area and inconvenience to boaters during construction.

3.2.5.6 Possible Loss of Environmental Values

No more than minimal impacts expected. The proposed modification would reduce total wetland impacts and increase the amount of Waters of the U.S. The net effect of the proposed modification is expected to be positive.

3.2.5.7 Actions to Minimize Impacts

The proposed modifications are proposed to minimize environmental impacts and ensure the plan is constructed in a timely manner. This should minimize impacts to organisms and the aquatic ecosystem.

3.2.6 Proposed Disposal Site Determination

Each disposal site shall be specified through application of the guidelines. The mixing zone shall be confined to the smallest practicable zone within each specified disposal site that is consistent with the type of dispersion determined to be appropriate by the application of the guidelines.

Proposed deposition of dredged material would be in the Andrews Island CDF. Additional impacts to Waters of the U.S. are expected to be minimal.

3.2.7 Determination of Cumulative Effects on the Aquatic Ecosystem

Cumulative effects attributable to the discharge of dredged or fill material in Waters of the United States should be predicted to the extent reasonable and practical.

The proposed action is expected to produce minimal additional impacts. This is one of three recent modifications contemplated for the Brunswick Harbor Deepening Project (use of a bed-leveler in the bar channel, use of pre-treatment in the inner harbor, and this one to modify the wetland mitigation plan). The proposed modification should be beneficial in that it would reduce total wetland impacts and increase the acreage of Waters of the U.S., when compared to the originally approved plan.

3.2.8 Determination of Secondary Effects on the Aquatic Ecosystem

Secondary effects are effects on an aquatic ecosystem that are associated with a discharge of dredged or fill materials, but do not result from the actual placement of the dredged or fill material.

Some minor turbidity impacts may be produced, but additional impacts should be minimal. The reduction in total wetland impacts should be beneficial.

4.0 FINDINGS OF COMPLIANCE OR NONCOMPLIANCE WITH RESTRICTIONS ON DISCHARGE – (SECTION 230.12)

4.1 DETERMINATIONS

a. That an ecological evaluation of the discharge of dredged material associated with the proposed action has been made following the evaluation guidance in 40 CFR 230.6, in conjunction with the evaluation considerations at 40 CFR 230.5.

b. That potential short-term and long-term effects of the proposed action on the physical, chemical, and biological components of the aquatic ecosystem have been evaluated and it has been found that the proposed discharge will not result in significant degradation of the environmental values of the aquatic ecosystem.

c. That there are no less environmentally damaging practicable alternatives to the proposed work that would accomplish project goals and objectives.

(1) That the proposed action will not cause or contribute to violations of any applicable State water quality standards, will not violate any applicable toxic effluent standard or prohibition under Section 307 of the Clean Water Act, will not jeopardize the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, and will not violate any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under Title III of the Marine Protection, Research, and Sanctuaries Act of 1972.

(2) That the proposed work will not cause or contribute to significant degradation of the Waters of the United States.

(3) That the discharge includes all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem.

4.2 FINDINGS

Based on the determinations made in this Section 404 (b)(1) evaluation, the finding is made that, with the conditions enumerated in this document, the proposed action complies with the Section 404(b)(1) Guidelines.

APPENDIX F

BRUNSWICK HARBOR DEEPENING PROJECT, GLYNN COUNTY, GA

PROPOSED MODIFICATION OF THE WETLAND MITIGATION PLAN

ESSENTIAL FISH HABITAT EVALUATION

December 2006

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Essential Fish Habitat (EFH) Assessment
Brunswick Harbor Deepening Project
Glynn County, Georgia:
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1.0 INTRODUCTION

This evaluation is conducted in accordance with Section 305(b)(2) of the Magnuson-Stevens Fishery Conservation and Management Act (As Amended Through October 11, 1996). That provision states: "Each Federal agency shall consult with the Secretary with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any essential fish habitat identified under this Act." It is also done in accordance with the Interim Final Rule (par. 600.920(g)) that requires an EFH Assessment contain the following: (1) Description of the Proposed Action, (2) An Analysis of the Effects, including cumulative effects, of the action on EFH, the managed species, and associated species by life history stage, (3) The Federal agency's views regarding the effects of the action on EFH, and (4) Proposed mitigation, if applicable.

2.0 COORDINATION

The District coordinated this assessment of proposed modifications to the Jekyll Island Mitigation Plan with the NOAA Habitat Conservation Division. The agency responded by letter dated May 25, 2004. Response was provided under the Fish and Wildlife Coordination Act and the Magnuson-Stevens Fishery Conservation and Management Act. The agency stated they did not object to the project but would support an effort to convert more of the filled wetlands on the proposed mitigation site to saltmarsh.

After further evaluation of potential alternatives, the District proposed to modify the project to reduce wetland impacts. Rather than build a new turning basin in East River that would require impacts to 18.1 acres of salt marsh, the District is now proposing to enlarge the existing turning basin in East River with required wetland impacts of 7.3 acres of saltmarsh. The proposed turning basin enlargement was coordinated with the NOAA Habitat Conservation Division. The agency responded by email from Kay Davy, NMFS Habitat Conservation Division, to Steve Calver, SAM-PD-EC, October 3, 2006. “I am responding on behalf of David Rackley, who previously reviewed this project, but is now retired. NMFS has reviewed the forwarded emails, previous letters, and the comments submitted by the other agencies. Considering that the revisions should reduce temporary and overall wetland impacts, NMFS concurs that the proposed revisions do not alter our previous concurrence as stated in our letter dated May 25, 2004.”

Since the NMFS has stated their EFH Determination concurrence covers the East River Turning Basin Enlargement modification, no additional coordination of this issue is necessary. However, this EFH Assessment has been modified to reflect the District's evaluation of the proposed alternative to modify the Brunswick Harbor Deepening Project to reduce wetland impacts by substituting enlargement of the existing turning basin for the originally approved construction of a new turning basin.

3.0 DESCRIPTION OF PROPOSED ACTION

3.1 Proposed Plan as Originally Evaluated. The wetland mitigation plan calls for restoration of 59.4 acres of salt marsh on Jekyll Island previously impacted by discharge of dredged material. Restoration entails removal of dredged material from the site. The original mitigation plan, as described in the FEIS, called for placement of material excavated from the site on an adjacent high ground area. This plan was modified by EA in February 2002, to allow placement of excavated materials on Andrews Island or other approved high ground area. It is now apparent that water access to the site is necessary to allow excavated sediment to be carried by water to Andrews Island. Two alternative means of access are proposed: 1) build a temporary barge access canal into the site from Jekyll Creek or 2) build a temporary dock facility with minor excavation at the dock face to allow a barge or similar craft to tie up and receive sediments to be transported to a disposal facility. In addition, as an alternative to disposal in the Andrews Island dredged material disposal facility, it is proposed that materials be transported and discharged in the Brunswick Harbor Ocean Dredged Material Disposal Area (ODMDS).

3.2 Selected Alternative. The proposed work as originally advertised was to modify the Brunswick Harbor Deepening Wetland Mitigation Plan to allow construction of temporary barge access and to allow placement of excavated sediment in the Brunswick Harbor Ocean Dredged Material Deposal Site (ODMDS). Comments received on the draft EA and cost projections led to a decision to consider a further modification to the project to reduce potential wetland impacts and required wetland mitigation. The selected alternative is to modify the Brunswick Harbor Deepening Project to include enlargement of the existing East River Turning Basin, rather than construction of a new turning basin, thereby reducing proposed wetland impacts from 18.1 acres to 7.3 acres, and reducing wetland mitigation requirements from 59.4 acres to 16.7 acres. Details on each alternative are provided in the Final EA to which this evaluation is an appendix. Details concerning proposed on-site mitigation can also be found in the Final EA for this proposal.

We have estimated the amount of impacts to Waters of the U.S. for construction of a turning basin, under the old plan and the new one. These are shown in the following table. This table shows that although the area of Waters of the U.S. that will be disturbed by dredging is about the same in both proposals, the new plan greatly increases the amount of created waters (since part of the turning basin will be constructed from high ground on Andrews Island).

	Old Plan	New Plan	New Plan with Transitions
Acres of disturbed Waters of the U.S.	31.4 acres	16.8 acres	31.1
Additional created Waters of the U.S.	2.2 acres	15.2 acres	15.2

4.0 ANALYSIS OF THE EFFECTS OF THE PROPOSED WORK ON EFH

4.1 IDENTIFY APPLICABLE EFH

EFH habitat applicable to this proposal includes several categories listed below.

4.1.1 Generalized areas designated by the South Atlantic Fisheries Council

These include intertidal flats and Estuarine Water Column (EFH Guidance, Appendix 6; Final Habitat Plan, Section 2.1.1, pages 9 & 10; and Final Habitat Plan, Sections 3.1.1.5.1 and 3.1.3).

4.1.1.1 Intertidal Flats

The proposed action should have minimal impact on intertidal flats. Unvegetated intertidal flats do not exist in the area of the approved new East River Turning Basin site, nor in the area of the existing turning basin to be expanded. The approved construction of a new East River turning basin would require impacts to 18.1 acres of wetlands, whereas the proposed enlargement of the existing East River Turning Basin would require impacts to only 7.3 acres of wetlands. This 10.8 acre reduction in wetland impacts should have a beneficial effect on EFH.

4.1.1.2 Estuarine Water Column

Total suspended particulate matter produced by this activity is expected to be similar to that produced by other authorized forms of dredging, including hopper dredging. These effects are expected to be temporary and minor. The proposed enlargement of the existing turning basin will in large part occur through excavation of adjacent high ground on Andrews Island. This will result in additional estuarine water column, a beneficial effect on EFH.

4.1.2 Areas identified under specific plans for managed species

(EFH Guidance, EFH Designation, p.1, p. 2, par. 3)

The South Atlantic Fishery Management Council has fishery management plans for two groups of species that could be affected by the proposed work, penaeid shrimp and red drum (EFH Guidance, Appendix 3, and Final Habitat Plan, Sections 3.3.1 (shrimp) and 3.3.2 (red drum).

EFH for Penaeid shrimp is defined to include nursery areas including subtidal non-vegetated flats (Final Habitat Plan for the South Atlantic Region: Section 3.3.1.3, par. 1, p. 182). The area of particular concern for early growth and development encompasses the entire estuarine system from the lower salinity portions of the river systems through the inlet mouths (Section 3.3.1.6, last par.). However, that last paragraph also identifies high marsh areas, and deep holes and creek channels during the winter. The potential increased turbidity from the proposed action is expected to be minimal and is not expected to have more than minimal impact on these areas. The proposed enlargement of the existing turning basin will result in approximately 10.8 acre reduction in potential impacts to salt marsh. Overall impacts to this EFH should be beneficial.

EFH for red drum includes unconsolidated bottom (soft sediment) (Section 3.3.2.2, par.2). As with the penaeid shrimp, the area of particular concern for early growth and development includes the entire estuarine system from the lower salinity portions of the river systems through the inlet mouth or lower harbor areas. However, the Areas of Particular Concern are further defined to include high marsh areas and deep holes and creek channel during the winter (Section 3.3.2.3, par. 4). The potential increased turbidity from the proposed action is expected to be minimal and is not expected to have more than minimal impact on these areas. The proposed modification would also decrease potential adverse effects to this EFH.

4.1.3 Geographically Defined Habitat Areas of Particular Concern

(EFH Guidance, Appendix 7)

These include special management zones, hard bottoms, and State-designated areas of importance to managed species, and submerged aquatic vegetation. None of these areas would be impacted by the proposed work.

5.0 THE DISTRICT'S VIEWS ON THE EFFECT OF THE PROPOSED WORK ON EFH

As discussed above under each type of identified EFH, when taking into account the overall effect of the proposed work, the District expects the proposed enlargement of the existing East River Turning Basin to have a beneficial effect on EFH. When compared to the originally approved plan, this modification would result in a 10.8-acre reduction in wetland impacts and an increase of about 13 acres of additional Waters of the U.S.

6.0 PROPOSED MITIGATION

Because no more than minimal negative impacts to EFH are expected, the District has identified no need for mitigation.

7.0 REFERENCES

Final Habitat Plan. Final Habitat Plan for the South Atlantic Region: Essential Fish Habitat Requirements for Fishery Management Plans of the South Atlantic Fisher Management Council, Prepared by the: South Atlantic Fishery Management Council, October 1998.).

EFH Guidance (Essential Fish Habitat: New Marine Fish Habitat Conservation mandate for Federal Agencies, National Marine Fisheries Service, Habitat Conservation Division, Southeast Regional Office, St. Petersburg, FL, February 1999).

Interim Final Rule. 50 CFR Part 600. Magnuson-Stevens Act Provisions; Essential Fish Habitat (EFH); Interim Final Rule; Effective on January 20, 1998.

APPENDIX G

GEORGIA
CZM CONSISTENCY DETERMINATION

FEDERAL CONSISTENCY DETERMINATION

GEORGIA COASTAL MANAGEMENT PROGRAM

FOR

BRUNSWICK HARBOR DEEPENING PROJECT MODIFICATION – WETLAND MITIGATION PLAN PROPOSED CHANGES GLYNN COUNTY, GEORGIA

December 2006

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1.0 SUMMARY DETERMINATION

The Federal Coastal Zone Management Act (CZMA), 16 U.S.C. 1451 et seq., as amended, requires each Federal agency activity performed within or outside the coastal zone (including development projects) that affects land or water use, or natural resources of the coastal zone to be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved state management programs. A direct Federal activity is defined as any function, including the planning and/or construction of facilities, which is performed by or on behalf of a Federal agency in the exercise of its statutory responsibilities. A Federal development project is a Federal activity involving the planning, construction, modification or removal of public works, facilities or other structures, and the acquisition, use or disposal of land or water resources.

To implement the CZMA and to establish procedures for compliance with its Federal consistency provisions, the U.S. Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), has promulgated regulations which are contained in 15 C.F.R. Part 930. This Consistency Determination is being submitted in compliance with Part 930.30 through 930.44 of those regulations.

Coordination:

The District coordinated this assessment of proposed modifications to the Jekyll Island Mitigation Plan with the Georgia Coastal Resources Division Coastal Zone Management Office. The agency responded by letter dated May 28, 2004, with several questions concerning the proposal and potential alternatives.

After further evaluation of potential alternatives, the District proposed to modify the project to reduce wetland impacts. Rather than build a new turning basin in East River that would require impacts to 18.1 acres of salt marsh, the District is now proposing to enlarge the existing turning basin in East River with required wetland impacts of 7.3 acres of saltmarsh. The proposed turning basin enlargement was coordinated with the Georgia CZM office. The agency responded by email from Kelie Moore, Georgia Coastal Resources Division, to Steve Calver, SAM-PD-EC, December 13, 2006. "The present request for modification for changes in the East River Turning Basin has been reviewed by this office with coordination with the DNR, Environmental Protection Division. It is the determination of this office that the proposed changes are minor in nature and result in actual reduced impacts of the overall project. Subsequently, the existing Federal Consistency Determination Concurrence shall remain in effect, as will any pertinent condition of the previously issued modifications."

Since the Georgia DNR CZM office has stated their previous CZM concurrence covers the East River Turning Basin Enlargement modification, no additional coordination of this issue is necessary. However, this CZM Federal Consistency Determination has been modified to reflect the District's evaluation of the proposed alternative to modify the Brunswick Harbor Deepening Project to reduce wetland impacts by substituting enlargement of the existing turning basin for the originally approved construction of a new turning basin.

Proposed Plan as Originally Evaluated. The original mitigation plan, as described in the FEIS, called for placement of excavated material on Jekyll Island. This was modified by EA in February 2002, to allow placement of excavated materials on Andrews Island or other approved high ground area. It is now apparent that water access to the site is necessary to allow excavated sediment to be carried by water to Andrews Island. Two alternative means of access are proposed: 1) build a temporary barge access canal into the site from Jekyll Creek or 2) build a temporary dock facility with minor excavation at the dock face to allow a barge or similar craft to tie up and receive sediments to be transported to a disposal facility. In addition, as an alternative to disposal in the Andrews Island dredged material disposal facility, it is proposed that materials be transported and discharged in the Brunswick Harbor Ocean Dredged Material Disposal Area (ODMDS).

Selected Alternative. The proposed work as originally advertised was to modify the Brunswick Harbor Deepening Wetland Mitigation Plan to allow construction of temporary barge access and to allow placement of excavated sediment in the Brunswick Harbor Ocean Dredged Material Deposal Site (ODMDS). Comments received on the draft EA and cost projections led to a decision to consider a further modification to the project to reduce potential wetland impacts and required wetland mitigation. The selected alternative is to modify the Brunswick Harbor Deepening Project to include enlargement of the existing East River Turning Basin, rather than construction of a new turning basin, thereby reducing proposed wetland impacts from 18.1 acres to 7.3 acres, and reducing wetland mitigation requirements from 59.4 acres to 16.7 acres. Details on each alternative are provided in the Final EA to which this evaluation is an appendix. Details concerning proposed on-site mitigation can also be found in the Final EA for this proposal.

We have estimated the amount of impacts to Waters of the U.S. for construction of a turning basin, under the old plan and the new one. These are shown in the following table. This table shows that although the area of Waters of the U.S. that will be disturbed by dredging is about the same in both proposals, the new plan greatly increases the amount of created waters (since part of the turning basin will be constructed from high ground on Andrews Island).

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Acres of disturbed Waters of the U.S.	31.4 acres	16.8 acres	31.1
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In accordance with the CZMA, the U.S. Army Corps of Engineers has determined that the proposed modifications to the Brunswick Harbor Deepening Wetland Mitigation Plan would be carried out in a manner which is consistent with the enforceable policies of the Georgia Coastal Management Program. The evaluations supporting that determination are presented in Sections 6.00 through 9.00 of this document.

2.0 BACKGROUND

2.1 PURPOSE

The selected alternative is to modify the Brunswick Harbor Deepening Project to include enlargement of the existing East River Turning Basin, rather than construction of a new turning basin, thereby reducing proposed wetland impacts from 18.1 acres to 7.3 acres, and reducing wetland mitigation requirements from 59.4 acres to 16.7 acres. This Consistency Determination addresses the consistency of the proposed modification with the Georgia Coastal Management Program, as required by the Federal Coastal Zone Management Act (CZMA). For purposes of the CZMA, the enforceable policies of the Georgia Coastal Management Plan constitute the approved state program.

2.2 EXISTING BRUNSWICK HARBOR DEEPENING FEDERAL NAVIGATION PROJECT

This document is an appendix to an Environmental Assessment (EA) for this proposed modification to the Brunswick Harbor Deepening Project. For a complete project description of the project dimensions, see the Final EIS for the Brunswick Harbor Deepening Project. The project dimensions were subsequently modified to include a bend widener in the South Brunswick River. A description of that widener can be found in a Final EA dated February 2002 entitled Proposed Modifications to the Brunswick Harbor Deepening Project.

2.3 GCMP JURISDICTION

Brunswick Harbor is located in Glynn County, along the southeast coast of Georgia. Glynn County is one of the six Georgia counties lying adjacent to the coast and is included in the Georgia Coastal Management Plan as one of the eleven counties that are within the coastal area. The Georgia CMP lists dredging, channel improvements and other navigational works conducted by the U.S. Army Corps of Engineers as being direct Federal activities that are subject to Federal Consistency.

2.4 AUTHORITY

The Federal Coastal Zone Management Act (CZMA), 16 U.S.C. SS 1451 et seq., as amended, is the legislative authority regarding the consistency of Federal actions with state coastal policies. Section 1456(c)(1)(A) of the CZMA states: "Each Federal agency activity within or outside the coastal zone that affects any land or water use or natural resource of the coastal zone shall be carried out in a manner which is consistent to the maximum extent practicable with the enforceable policies of approved state management programs." A Federal activity is defined as any function, including the planning and/or construction of facilities that is performed on behalf of a Federal agency in the exercise of its statutory responsibilities.

To implement the CZMA and to establish procedures for compliance with its federal consistency provisions, the U.S. Department of Commerce, National Oceanographic and Atmospheric Administration, has promulgated regulations, 15 C.F.R. Part 930. This Consistency Determination was prepared in compliance with SS 930.30 through 930.44 of those regulations.

3.0 PROJECT DESCRIPTION

3.1 ALTERNATIVE A – NO ACTION

One alternative (Alternative A) was considered the "No Action" Plan. Under this alternative, the only method of removal of excavated materials from the site would be by truck from Jekyll Island and transport of the material to Andrews Island or other approved high ground area. It is currently believed that use of this method under conditions of minimal environmental impact would be very expensive. For example, methods used to ensure that the trucks do not spill excavated material onto paved roads would be expensive. The large number of trucks that would be required to daily move in and out of the site would be a hazard to other local traffic, and would most likely require road paving at the end of the project to return the road to its original condition.

3.2 ALTERNATIVE B – CONSTRUCT TEMPORARY BARGE ACCESS CANAL

A 14-foot deep barge access canal 60 feet wide, 1,350 feet long, and requiring 90,000 cubic yards of excavation would be constructed at the site. Approximately 900 feet of the canal would be constructed into high ground and marsh and the other 450 feet would be deepening in Jekyll Creek. It is expected that transport of excavated material would be to Andrews Island or the Brunswick ODMDS (if approved). After transport of excavated material off site is finished, the canal would be filled out to the edge of the bank to the elevation of adjacent sediment. This will result in replacement of the berm along the bank of Jekyll Creek to original elevations

3.3 ALTERNATIVE C – CONSTRUCT TEMPORARY DOCKING FACILITY

A temporary docking facility to include pilings, fixed and floating dock, and dolphins would be constructed in Jekyll Creek adjacent to the site to allow mooring of barges and similar vessels for transport excavated material from the site. Transport of material is expected to be to Andrews Island or the Brunswick ODMDS (if approved). Some minor excavation at the dock face would be required for adequate clearance of moored vessels. Two potential dock configurations are envisioned. (1) About a 20-ft. wide dock approximately 350 feet long may be constructed parallel to the bank . This would require excavation to –12 ft. MLLW of about 17,000 cubic yards of sediment up to 90 feet in front of the dock face and 9,000 cubic yards of sediment for a 60 ft. wide passageway to the toe of the AIWW channel (a total of 26,000 cubic yards of sediment). (2) About a 20-ft. wide dock approximately 350 feet long may be constructed perpendicular to the bank. This could require excavation of about 12,000 cubic yards of sediment to construct a 40-ft. wide area of deep water (–12 feet MLLW) on either side of the dock leading to a 60 ft wide passageway to the toe of the AIWW channel. No structure would be placed closer than 90 feet to the toe of the AIWW channel. All structures would be removed in their entirety once construction of the project is completed. Excavated sediments may be stockpiled within the mitigation site prior to transport for disposal.

3.4 ALTERNATIVE D – TRANSPORT EXCAVATED MATERIALS TO THE BRUNSWICK HARBOR ODMDS

Materials excavated from the mitigation site (330,000 cubic yards), and the barge canal (90,000 cubic yards) or temporary docking facility (12,000 to 26,000 cubic yards) would be transported to the Brunswick Harbor ODMDS. The transport and disposal of excavated sediment in the Brunswick Harbor ODMDS requires EPA concurrence in the District's Section 103 Evaluation. This evaluation is included as an appendix to this EA.

3.5 ALTERNATIVE E – MODIFY THE EAST RIVER TURNING BASIN

The selected alternative is to modify the Brunswick Harbor Deepening Project to include enlargement of the existing East River Turning Basin, rather than construction of a new turning basin, thereby reducing proposed wetland impacts from 18.1 acres to 7.3 acres, and reducing wetland mitigation requirements from 59.4 acres to 16.7 acres. Details on each alternative are provided in the Final EA to which this evaluation is an appendix. Details concerning proposed on-site mitigation can also be found in the Final EA for this proposal.

4.0 EFFECTS OF PROPOSED PROJECT

The effects of the proposed work are described in detail in Section 6.0, **Environmental Consequences,** of the EA for the proposed modification. Since they are contained in the main EA, they will not be repeated here.

5.0 AREAS OF ENVIRONMENTAL CONCERN

The areas of potential environmental concern are addressed in the EA for the project, at Section 4.0, Environmental Consequences. There are only a few areas of particular concern, which will be discussed here.

5.1 ENDANGERED SPECIES

Federally listed threatened and endangered sea turtles and the Florida manatee occur in the project area, especially when water temperatures are at or above 14 degrees C. Conditions are currently in place for the Deepening Project activities to protect endangered species. These conditions are adequate to protect endangered species from the additional proposed activities. No additional effects are expected.

5.2 CULTURAL RESOURCES

A cultural resource survey of the mitigation site is planned for the near future. Any potential impacts will be addressed and the results of that survey will be coordinated with the Georgia State Historic Preservation Officer.

5.3 WATER QUALITY/TURBIDITY

No more than minor additional impacts expected and should be confined to the time of construction. All dredging operations produce some turbidity. Dredging of the turning basin and associated features is expected to produce some turbidity. These effects would be limited to the time of construction and are expected to be minor. Since this operation would be confined to the open ocean, turbidity is expected to dissipate rapidly. The FEIS for the Deepening Project included construction of the wetland mitigation plan and approved use of mechanical dredges such as bucket and clam shell dredges. Potential water quality impacts associated with dredging were addressed in the Section 404(b)(1) Evaluation included in the FEIS. That evaluation is incorporated by reference. The proposed minor additional dredging is not expected to have significant impacts beyond those already addressed. No additional Section 404(b)(1) Evaluation for this proposed work is deemed necessary.

5.4 CONTAMINATED SEDIMENT

No additional impacts expected. The mitigation site sediments have been tested for physical and chemical parameters. No contaminants were identified at levels of concern. Contaminants are discussed in the Section 103 Evaluation, an appendix to this EA.

5.5 NAVIGATION

The modification would be done to improve navigation. Impacts to ship traffic during construction are expected to be minor and temporary.

5.6 PHYSICAL COMPATIBILITY OF DREDGED MATERIAL WITH THE DISCHARGE SITE

Use of the ODMDS for material associated with the modification is not currently contemplated. The Brunswick Harbor ODMDS currently receives dredged material from the navigation channel oceanward of the Sydney Lanier Bridge. These sediments vary from sands to silts to clays. Should the Brunswick ODMDS be chosen to receive materials excavated from the mitigation site, the excavated sediments are expected to be compatible with the dredged material currently at the ODMDS.

6.0 STATE ENFORCEABLE POLICIES

6.1 INTRODUCTION

The goals of the Georgia Coastal Management Program are attained by enforcement of the policies of the State as codified within the Official Code of Georgia Annotated. "Policy" or "policies" of the Georgia Coastal Management Program means the enforceable provisions of present or future applicable statutes of the State of Georgia or regulations promulgated duly thereunder (O.C.G.A. 12-5-322). The statutes cited as policies of the Program were selected because they reflect the overall Program goals of developing and implementing a balanced

program for the protection of the natural resources, as well as promoting sustainable economic development of the coastal area.

Below follows a list of the state laws, which -- along with their associated regulations -- provide the legal authority for the state's regulation of its salt marshes, beaches and dune fields, and tidal water bottoms. Each of the coastal resources and use areas of concern is discussed separately in this section, in alphabetical order. For each coastal resources and use areas of concern, a policy statement is provided with a direct citation to Georgia law. The laws are not cited in their entirety. Instead, the purpose of the statute, or a pertinent section of the statute, is cited. The Program policies are the enforceable provisions of the laws cited. A policy statement for each law describes the spirit of the law, directly cited from statements set out in the particular law. In each case, the citation for the statement is provided. The particular statements may or may not be enforceable as written, but the laws to which they relate contain enforceable provisions that have been enacted by the Georgia General Assembly to implement the policies as stated. The policies cited here are, therefore, supported by legally binding laws of the State of Georgia, through which Georgia is able to exert control over impacts to the land and water uses and natural resources in the coastal area. The statutes referenced herein can be found in the Official Code of Georgia Annotated (O.C.G.A.), copies of which are located in headquarters offices of State and local agencies, most public libraries, local courthouses, and numerous other public offices.

A paragraph titled "General Description" is included after each cited policy to serve as a quick reference to the relevant provisions of the law. The General Description is not intended to be, nor should it be interpreted as, law, policy, or restatement of the law. It is merely provided for the convenience of the reader to gain an initial concept as to the content of the related law. The reader is advised to refer to the actual law cited, and not to rely on the General Description as a basis for a legal interpretation of the law on any particular issue. The "Policy Statement" and "General Description" paragraphs were copied directly from the Georgia CZM Program. A paragraph titled "Consistency" follows those two paragraphs to explain Savannah District's position on the extent to which the proposed project is consistent with that enforceable provision.

6.2 LIST OF PERTINENT STATE LAWS AND AUTHORITIES

Coastal Marshlands Protection Act
Department of Natural Resources Authority
Endangered Wildlife Act
Game and Fish Code
Georgia Administrative Procedures Act (Revocable License Program)
Georgia Air Quality Act
Georgia Aquaculture Development Act
Georgia Boat Safety Act
Georgia Coastal Management Act
Georgia Comprehensive Solid Waste Management Act
Georgia Environmental Policy Act
Georgia Environmental Policy Act
Georgia Erosion and Sedimentation Control Act
Georgia Fisheries Law Pertaining to Shellfish

Georgia Hazardous Waste Management Act
Georgia Heritage Trust Act
Georgia Natural Areas Act
Georgia Oil and Gas Deep Drilling Act
Georgia Safe Dams Act
Georgia Safe Drinking Water Act
Georgia Scenic Rivers Act
Georgia Scenic Trails Act
Georgia Surface Mining Act
Georgia Underground Storage Tank Act
Georgia Water Quality Control Act
Groundwater Use Act
Historic Area Act
Licenses to Dig, Mine, and Remove Phosphate Deposits
Protection of Tidewaters Act
River Corridor Protection Act
Shore Protection Act
Title 31 - Health (Septic Tank Law)
Water Wells Standards Act
Wildflower Preservation Act

6.3 AQUACULTURE

6.3.1 Policy Statement

Georgia Aquaculture Development Act (O.C.G.A. 27-4-251, et seq.)
27-4-254. Duty of commission to develop aquaculture development plan; contents of plan; meetings of commission; staff support.

The commission shall make a thorough study of aquaculture and the potential for development and enhancement of aquaculture in the state. It shall be the duty of the commission to develop, distribute, and, from time to time, amend an aquaculture development plan for the State of Georgia for the purpose of facilitating the establishment and growth of economically viable aquaculture enterprises in Georgia. (Code 1981. SS 27-4-254, enacted by Ga.L. 1992, p. 1507, SS 8.)

6.3.2 General Description

The Georgia Aquaculture Development Act was enacted in 1992 to study aquaculture development in Georgia. A 14-member Aquaculture Development Commission composed of industry representatives, scientists, agency representatives, and others is created. The Department of Natural Resources, with assistance from the Department of Agriculture and the Department of Industry, Trade, and Tourism provides staff support for the Commission.

6.3.3 Consistency

The proposed project is fully consistent with this policy.

6.4 AIR QUALITY

6.4.1 Policy Statement.

Georgia Air Quality Act (0.C.G.A. 12-9-1, et seq.)
12-9-2. Declaration of public policy.

It is declared to be the public policy of the State of Georgia to preserve, protect, and improve air quality and to control emissions to prevent the significant deterioration of air quality and to attain and maintain ambient air quality standards so as to safeguard the public health, safety, and welfare consistent with providing for maximum employment and full industrial development of the state. (Code 1933, 88-901, enacted by Ga.L. 1967, p. 581, SS 1; Ga.L. 1978, p. 275, SS 1; Ga.L. 1992, p. 918, SS 2; Ga.L. 1992, p. 2886, SS 1.)

6.4.2 General Description

The Georgia Air Quality Act provides authority to the Environmental Protection Division to promulgate rules and regulations necessary to abate or to control air pollution for the State as a whole or from area to area, as may be appropriate. Establishment of ambient air quality standards, emission limitations, emission control standards, and other measures are necessary to provide standards that are no less stringent than the Federal Clean Air Act are mandated. The Act also requires establishment of a program for prevention and mitigation of accidental releases of hazardous air contaminants or air pollutants, training and educational programs to ensure proper operation of emission control equipment, and standards of construction no less stringent than the federal Act. The Environmental Protection Division administers the Georgia Air Quality Act throughout the State. The Memorandum of Agreement between the Georgia Coastal Resources Division and the Environmental Protection Division ensures cooperation and coordination in the achievement of the policies of the Program.

6.4.3 Consistency

Adverse impacts to air quality stemming from the use of construction equipment would be minimal in extent, and both localized and temporary in nature. The proposed project is fully consistent with this policy.

6.5 BOATING SAFETY

6.5.1 Policy Statement

Georgia Boat Safety Act (O.C.G.A. 52-7-1. et seq.)
52-7-2. Declaration of policy.

It is the policy of this state to promote safety for persons and property in and connected with the use, operation, and equipment of vessels and to promote the uniformity of laws relating thereto. (Ga.L. 1973, p. 1427, SS 2)

6.5.2 General Description

The Georgia Boat Safety Act provides enforceable rules and regulations for safe boating practices on Georgia's lakes, rivers, and coastal waters. This Act establishes boating safety zones for a distance of 1,000 feet from the high-water mark on Jekyll Island, Tybee Island, St. Simons Island, and Sea Island. All motorized craft, including commercial fishing vessels, jet skis, and powerboats, are prohibited from these waters, except at certain pier and marina access points. This Act defines "abandoned vessels" as any left unattended for five days and provides for their removal. The Law Enforcement Section of the Georgia Department of Natural Resources, Wildlife Resources Division and the Georgia Bureau of Investigation enforces these regulations.

6.5.3 Consistency

Construction contract specifications require adherence to all coast guard regulations. The proposed action is fully consistent with this policy.

6.6 COASTAL MANAGEMENT

6.6.1 Policy Statement.

Georgia Coastal Management Act (0.C.G.A. 12-5-320, et seq.)
12-5-321. Legislative purpose.

The General Assembly finds and declares that the coastal area of Georgia comprises a vital natural resource system. The General Assembly recognizes that the coastal area of Georgia is the habitat of many species of marine life and wildlife, which must have clean waters, and suitable habitat to survive. The General Assembly further finds that intensive research has revealed that activities affecting the coastal area may degrade water quality or damage coastal resources if not properly planned and managed. The General Assembly finds that the coastal area provides a natural recreation resource, which has become vitally linked to the economy of Georgia's coast and to that of the entire state. The General Assembly further finds that resources within this coastal area are costly, if not impossible, to reconstruct or rehabilitate once adversely affected by human-related activities and it is important to conserve these resources for the present and future use and enjoyment of all citizens and visitors to this state. The General Assembly further finds that the coastal area is a vital area of the state and that it is essential to maintain the health, safety, and welfare of all the citizens of the state. Therefore, the General Assembly declares that the management of the coastal area has more than local significance, is of equal importance of all citizens of the state, is of state-wide concern, and consequently is properly a matter for coordinated regulation under the police power of the state. The General Assembly further finds and declares that activities and structures in the coastal area must be regulated to ensure that the values and functions of coastal waters and natural habitats are not impaired and to fulfill the responsibilities of each generation as public trustees of the coastal waters and habitats for succeeding generations.

6.6.2 General Description

The Coastal Management Act provides enabling authority for the State to prepare and administer a coastal management program. The Act does not establish new regulations or laws; it is

designed to establish procedural requirements for the Department of Natural Resources to develop and implement a program for the sustainable development and protection of coastal resources. It establishes the Department of Natural Resources as the State agency to receive and disburse federal grant moneys. It establishes the Governor as the approving authority of the program and as the person that must submit the program to the Federal government for approval under the Federal Coastal Zone Management Act. It requires other State agencies to cooperate with the Coastal Resources Division when exercising their activities within the coastal area.

6.6.3 Consistency

Preparation of this Consistency Determination is evidence that the Corps of Engineers agrees that Georgia's coast is a vital natural resource that deserves protection from unwise use. The proposed project fully adheres to the state's enforceable policies concerning development on the coast. The proposed project is fully consistent with this policy.

6.7 COASTAL MARSHLANDS

6.7.1 Policy Statement

Coastal Marshlands Protection Act (O.C.G.A. 12-5-280, et seq.)
12-5-281. Legislative findings and declarations.

The General Assembly finds and declares that the coastal marshlands of Georgia comprise a vital natural resource system. It is recognized that the estuarine area of Georgia is the habitat of many species of marine life and wildlife and, without the food supplied by the marshlands, such marine life and wildlife cannot survive. The General Assembly further finds that intensive marine research has revealed that the estuarine marshlands of coastal Georgia are among the richest providers of nutrients in the world. Such marshlands provide a nursery for commercially and recreationally important species of shellfish and other wildlife, provide a great buffer against flooding and erosion, and help control and disseminate pollutants. Also, it is found that the coastal marshlands provide a natural recreation resource, which has become vitally linked to the economy of Georgia's coastal zone and to that of the entire state. The General Assembly further finds that this coastal marshlands resource system is costly, if not impossible, to reconstruct or rehabilitate once adversely affected by man related activities and is important to conserve for the present and future use and enjoyment of all citizens and visitors to this state. The General Assembly further finds that the coastal marshlands are a vital area of the state and are essential to maintain the health, safety, and welfare of all the citizens of the state. Therefore, the General Assembly declares that the management of the coastal marshlands has more than local significance, is of equal importance to all citizens of the state, is of state-wide concern, and consequently is properly a matter for regulation under the police power of the state. The General Assembly further finds and declares that activities and structures in the coastal marshlands must be regulated to ensure that the values and functions of the coastal marshlands are not impaired and to fulfill the responsibilities of each generation as public trustees of the coastal marshlands for succeeding generations. (Code 1981, SS 12-5-281, enacted by Ga.L. 1992, p. 2294, SS 1.)

6.7.2 General Description

The Coastal Marshlands Protection Act provides the Coastal Resources Division with the authority to protect tidal wetlands. The Coastal Marshlands Protection Act limits certain activities and structures in marsh areas and requires permits for other activities and structures. Erecting structures, dredging, or filling marsh areas requires a Marsh Permit administered through the Coastal Management Program. In cases where the proposed activity involves construction on State-owned tidal water bottoms, a Revocable License issued by the Coastal Resources Division may also be required. Marsh Permits and Revocable Licenses are not issued for activities that are inconsistent with the Georgia Coastal Management Program.

The jurisdiction of the Coastal Marshlands Protection Act extends to "coastal marshlands" or "marshlands", which includes marshland, intertidal area, mudflats, tidal water bottoms, and salt marsh area within estuarine area of the state, whether or not the tidewaters reach the littoral areas through natural or artificial watercourses. The estuarine area is defined as all tidally influenced waters, marshes, and marshlands lying within a tide-elevation range from 5.6 feet above mean high-tide level and below. Exemptions from the jurisdiction of the Act include: Georgia Department of Transportation activities, generally; agencies of the United States charged with maintaining navigation of rivers and harbors; railroad activities of public utilities companies; activities of companies regulated by the Public Service Commission; activities incident to water and sewer pipelines; and, construction of private docks that don't obstruct tidal flow.

Any agricultural or silvicultural activity that directly alters lands within the jurisdictional areas of the Coastal Marshlands Protection Act must meet the permit requirements of the Act and must obtain a permit issued by the Coastal Resources Division on behalf of the Coastal Marshlands Protection Committee. Permits for marinas, community docks, boat ramps, recreational docks, and piers within the jurisdiction of the Coastal Marshlands Protection Act are administered by the Coastal Resources Division. To construct a marina, a marina lease is required. Private-use recreational docks are exempt from the Coastal Marshlands Protection Act, but must obtain a Revocable License and a State Programmatic General Permit.

6.7.3 Consistency

The proposed action would occur at an approved wetland mitigation site. The proposed modification has been coordinated with GADNR Coastal Resources Division. The proposed project is fully consistent with this policy.

6.8 DAMS

6.8.1 Policy Statement

Georgia Safe Dams Act (O.C.G.A. 12-5-370, et seq.)
12-5-371. Declaration of purpose.

It is the purpose of this part to provide for the inspection and permitting of certain dams in order to protect the health, safety, and welfare of all the citizens of the state by reducing the risk of failure of such dams. The General Assembly finds and declares that the inspection and

permitting of certain dams is properly a matter for regulation under the police powers of the state. (Ga.L. 1978, p. 795. SS 2)

6.8.2 Consistency

Construction or operation of a dam is not included in this project. The proposed project is fully consistent with this policy.

6.9 DEPARTMENT OF NATURAL RESOURCES

6.9.1 Policy Statement

12-2-3. Departmental purposes.

It shall be the objectives of the department:

a. To have the powers, duties, and authority formerly vested in the Division of Conservation and the commissioner of conservation;

b. By means of investigation, recommendation, and publication, to aid:

(1) In the promotion of the conservation and development of the natural resources of the state;

(2) In promoting a more profitable use of lands and waters;

(3) In promoting the development of commerce and industry; and

In coordinating existing scientific investigations with any related work of other agencies for the purpose of formulating and promoting sound policies of conservation and development.

c. To collect and classify the facts derived from such investigations and from the work of other agencies of the state as a source of information accessible to the citizens of the state and to the public generally, which facts set forth the natural, economic, industrial, and commercial advantages of the state; and

d. To establish and maintain perfect cooperation with any and every agency of the federal government interested in or dealing with the subject matter of the department. (Ga.L. 1937, p. 264, SS 4; Ga.L. 1949, p. 1079, SS 1; Ga.L. 1992, p. 6. SS 12.)

6.9.2 General Description

The authority for the Department of Natural Resources is found at O.C.G.A. 12-21, et seq. The objectives for the Department are described, including to aid: in promoting the conservation and development of the State's natural resources; in promoting a more profitable use of lands and waters; in promoting the development of commerce and industry; and in coordinating existing scientific investigations with related work of other agencies for the purpose of formulating and

promoting sound policies of conservation and development. The Act also requires the Department to establish and maintain perfect cooperation with any and every agency of the federal government interested in or dealing with the subject matter of the department."

The powers of the Department are established, including: investigations of the natural mining industry and commercial resources of the State and promotion of the conservation and development of such resources; the care of State parks and other recreational areas now owned or to be acquired by the State; examination, survey, and mapping of the geology, mineralogy, and topography of the State, including their industrial and economic utilization; investigation of the water supply and water power of the State with recommendations and plans for promoting their more profitable use and promotion of their development; investigations of existing conditions of trade, commerce, and industry in the State, with particular attention to the causes that may hinder or encourage their growth, and recommendations of plans that promote development of their interests.

The Department is set up in several Divisions. The Wildlife Resources Division is empowered to acquire land areas and to enter into agreements with landowners and the federal government for purposes of managing wildlife species and establishing specific sanctuaries, wildlife management areas, and public fishing areas. The Wildlife Resources Division administers a management plan for each area, which establishes short- and long-term uses, and guidelines for protection and use of each specific area. These areas owned and/or managed by the Wildlife Resources Division are important resources of the coastal area for conservation of wildlife and also for recreational hunting and fishing opportunities. Wildlife management areas within the jurisdiction of the Coastal Marshlands Protection Act and/or Shore Protection Act receive the additional protection provided by said legislation. The Environmental Protection Division is empowered to manage the State's air and water resources. The Coastal Resources Division is charged with management of coastal resources, which includes implementation of the Coastal Marshlands Protection Act and the Shore Protection Act. The Coastal Resources Division responsibilities also include management of marine fisheries resources. The Pollution Prevention Assistance Division provides technical assistance and education for reducing pollution throughout Georgia, including development of Best Management Practices for various industries. The Historic Preservation Division is charged with cataloging, protecting, and preserving the State's historic sites and areas. The Parks, Recreation, and Historic Sites Division has primary responsibility for development and maintenance of the State's parks and historic sites. The Program Support Division provides administrative support for the Department.

6.9.3 Consistency

The District is coordinating plans for the proposed action with the GADNR to obtain their views. The proposed action is consistent with this policy.

6.10 ENDANGERED WILDLIFE

6.10.1 Policy Statement

Endangered Wildlife Act (0.C.G.A. 2 7-3-130, et seq.)
27-3-132. Powers and duties of department and board.

The department shall identify and inventory any species of animal life within this state which it determines from time to time to be rare, unusual, or in danger of extinction; and, upon such determination, such species shall be designated protected species and shall become subject to the protection of this article.

The board shall issue such rules and regulations as it may deem necessary for the protection of protected species and for the enforcement of this article. Such rules and regulations shall not affect rights in private property or in public or private streams, nor shall such rules and regulations impede construction of any nature. Such rules and regulations shall be limited to the regulation of the capture, killing, or selling of protected species and the protection of the habitat of the species on public lands.

6.10.2 General Description

The Endangered Wildlife Act provides for identification, inventory, and protection of animal species that are rare, unusual, or in danger of extinction. Additional species may be added by the Board of Natural Resources at any time. The protection offered to these species is limited to those that are found on public lands of the State. It is a misdemeanor to violate the rules prohibiting capture, killing, or selling of protected species, and protection of protected species habitat on public lands. The rules and regulations are established and administered by the Department of Natural Resources for implementation of this Act.

Projects permitted under the authority of the Coastal Marshlands Protection Act, the Shore Protection Act, and the Revocable License require full compliance with the protection of endangered and protected species. Outside the jurisdiction of these laws, for those areas that are not public lands of Georgia, protection of endangered species is provided by the federal Endangered Species Act, which has jurisdiction over both private and public lands.

6.10.3 Consistency

The Brunswick Harbor Deepening Project FEIS and BATES contain conditions to address potential impacts to threatened and endangered species. The proposed action would have no additional effects not already considered in those documents. Those conditions would apply to the proposed modifications. The proposed project is fully consistent with this policy.

6.11 ENVIRONMENTAL POLICY

6.11.1 Policy Statement

Georgia Environmental Policy Act (0.C.G.A. 12-16-1, et seq.)
12-16-2. Legislative findings.

The General Assembly finds that:

a. The protection and preservation of Georgia's diverse environment is necessary for the maintenance of the public health and welfare and the continued viability of the economy of the state and is a matter of the highest public priority;

b. State agencies should conduct their affairs with an awareness that they are stewards of the air, land, water, plants, animals, and environmental, historical, and cultural resources;

c. Environmental evaluations should be a part of the decision-making processes of the state; and

d. Environmental effects reports can facilitate the fullest practicable provision of timely public information, understanding, and participation in the decision-making processes of the state. (Code 1981, SS 12-16-2, enacted by Ga.L. 1991, p. 1728, SS 1.)

6.11.2 General Description

The Georgia Environmental Policy Act (GEPA) requires that all State agencies and activities prepare an Environmental Impact Report as part of the decision-making process. This is required for all activities that may have an impact on the environment. Alternatives to the proposed project or activity must be considered as part of the report.

6.11.3 Consistency

Although GEPA does not directly apply to the US Army Corps of Engineers, the Corps complies with a similar law, the National Environmental Policy Act (NEPA). Savannah District prepared an EA as part of the evaluation of the proposed work. This Consistency Statement is a component of that EA. Preparation of the EA is fully consistent with this state law.

6.12 EROSION AND SEDIMENTATION

6.12.1 Policy Statement

Georgia Erosion and Sedimentation Act (O.C.G.A. 12-7-1. et seq.)
12-7-2. Legislative findings; policy of state and intent of chapter.

It is found that soil erosion and sediment deposition onto lands and into waters within the watersheds of this state are occurring as a result of widespread failure to apply proper soil erosion and sedimentation control practices in land clearing, soil movement, and construction activities and that such erosion and sediment deposition result in pollution of state waters and damage to domestic, agricultural, recreational, fish and wildlife, and other resource uses. It is therefore declared to be the policy of this state and the intent of this chapter to strengthen and extend the present erosion and sediment control activities and programs of this state and to provide for the establishment and implementation of a state-wide comprehensive soil erosion and sediment control program to conserve and protect the land, water, air, and other resources of this state. (Ga.L. 1975, p.994, SS 2.)

6.12.2 General Description

The Georgia Erosion and Sedimentation Act requires that each county or municipality adopt a comprehensive ordinance establishing procedures governing land disturbing activities based on the minimum requirements established by the Act. The Erosion and Sedimentation Act is administered by the Environmental Protection Division of the Georgia Department of Natural Resources, and by local governments. Permits are required for specified "land-disturbing activities," including the construction or modification of manufacturing facilities, construction activities, certain activities associated with transportation facilities, activities on marsh hammocks, etc. With certain constraints, permitting authority can be delegated to local governments.

One provision of the Erosion and Sedimentation Act requires that land-disturbing activities shall not be conducted within 25 feet of the banks of any State waters unless a variance is granted (O.C.G.A. 12-7-6-(15)). Construction of single-family residences under contract with the owner are exempt from the permit requirement but are still required to meet the standards of the Act (O.C.G.A. 12-7-17-(4)). Large development projects, both residential and commercial, must obtain a permit and meet the requirements of the Act. According to the Georgia Coastal Management Act, any permits or variances issued under the Erosion and Sedimentation Act must be consistent with the Georgia Coastal Management Program. Permits within the jurisdiction of the Coastal Marshlands Protection Act and the Shore Protection Act can include requirements that certain minimum water quality standards be met as a condition of the permit.

There are specific exemptions to the requirements of the Erosion and Sedimentation Act (O.C.G.A. 12-7-17 - Exemptions). The exemptions include: surface mining, granite quarrying, minor land-disturbing activities such as home gardening, construction of single-family homes built or contracted by the homeowner for his own occupancy, agricultural practices, forestry land management practices, dairy operations, livestock and poultry management practices, construction of farm buildings, and any projects carried out under the supervision of the Natural Resource Conservation Service of the U.S. Department of Agriculture. Exemptions from the requirements of the Act also apply to any project involving 1.1 acres or less, provided that the exemption does not apply to any land-disturbing activities within 200 feet of the bank of any State waters. Construction or maintenance projects undertaken or financed by the Georgia Department of Transportation, the Georgia Highway Authority, or the Georgia Tollway Authority, or any road or maintenance project undertaken by any county or municipality, are also exempt from the permit requirements of the Act, provided that such projects conform to the specifications used by the Georgia Department of Transportation for control of soil erosion. Exemptions are also provided to land-disturbing activities by any airport authority, and by any electric membership corporation or municipal electrical system, provided that such activities conform as far as practicable with the minimum standards set forth at Code Section 12-7-6 of the Erosion and Sedimentation Act. The Georgia Department of Transportation has developed a "Standard Specifications -- Construction of Roads and Bridges," which describes contractor requirements, including controls for sedimentation and erosion. The specifications describe the requirements for both temporary control measures for use during the construction phase, and permanent erosion and sedimentation control measures that need to be incorporated into the design of the project. Failure to comply with the provisions of the specification will result in cessation of all construction activities by the contractor, and may result in the withholding of

moneys due to the contractor according to a schedule of non-performance of erosion control, enforced by the Georgia Department of Transportation. Forestry and agricultural land-disturbing activities are subject to the Best Management Practices of the Georgia Forest Commission and the Georgia Soil and Water Conservation Commission, respectively.

6.12.3 Consistency

Project design would conform to the specifications used by the Georgia Department of Transportion for control of soil erosion. Therefore, the Corps believes this project is consistent with this policy.

6.13 GAME AND FISH

6.13.1 Policy Statement

27-1-3. Ownership and custody of wildlife; privilege to hunt, trap, or fish; general offenses. (Game and Fish Code)

The ownership of, jurisdiction over, and control of all wildlife, as defined in this title, are declared to be in the State of Georgia, in its sovereign capacity, to be controlled, regulated, and disposed of in accordance with this title. All wildlife of the State of Georgia are declared to be within the custody of the department for purposes of management and regulation in accordance with this title. However, the State of Georgia, the department, and the board shall be immune from suit and shall not be liable for any damage to life, person, or property caused directly or indirectly by any wildlife.

To hunt, trap, or fish, as defined in this title, or to possess or transport wildlife is declared to be a privilege to be exercised only in accordance with the laws granting such privilege. Every person exercising this privilege does so subject to the right of the state to regulate hunting, trapping, and fishing; and it shall be unlawful for any person participating in the privileges of hunting, trapping, fishing, possessing, or transporting wildlife to refuse to permit authorized employees of the department to inspect and count such wildlife to ascertain whether the requirements of the wildlife laws and regulations are being faithfully complied with. Any person who hunts, traps, fishes, possesses, or transports wildlife in violation of the wildlife laws and regulations violates the conditions under which this privilege is extended; and any wildlife then on his person or within his immediate possession are deemed to be wildlife possessed in violation of the law and are subject to seizure by the department pursuant to Code Section 27-1-21.

It shall be unlawful to hunt, trap, or fish except during an open season for the taking of wildlife, as such open seasons may be established by law or by rules and regulations promulgated by the board or as otherwise provided by law.

It shall be unlawful to hunt, trap, or fish except in compliance with the bag, creel, size, and possession limits and except in accordance with such legal methods and weapons and except at such times and places as may be established by law or by rules and regulations promulgated by the board.

It shall be unlawful to hunt, trap, or fish for any game species after having obtained the daily or season bag or creel limit for that species.

A person who takes any wildlife in violation of this title commits the offense of theft by taking. A person who hunts, traps, or fishes in violation of this title commits the offense of criminal attempt. Any person who violates any provision of this Code section shall be guilty of a misdemeanor.

If any court finds that any criminal violation of the provisions of this title is so egregious as to display a willful and reckless disregard for the wildlife of this state, the court may, in its discretion, suspend the violator's privilege to hunt, fish, trap, possess, or transport wildlife in this state for a period not to exceed five years. Any person who hunts, fishes, traps, possesses, or transports wildlife in this state in violation of such suspension of privileges shall be guilty of a misdemeanor of a high and aggravated nature and upon conviction thereof shall be punished by a fine of not less than $1,500.00 nor more than $5,000.00 or imprisonment for a period not exceeding 12 months or both. (Ga.L. 1968, p. 497, SS 1; Code 1933, SS 45-201, enacted by Ga.L. 1977, p. 396, SS 1; Ga.L. 1978, p. 816, SS 13, 14; Ga.L. 1992, p. 2391, SS 1.)

27-1-4. Powers and duties of board generally.

The board shall have the following powers and duties relative to this title:

a. Establishment of the general policies to be followed by the department under this title;

b. Promulgation of all rules and regulations necessary for the administration of this title including, but not limited to, rules and regulations to regulate the times, places, numbers, species, sizes, manner, methods, ways, means, and devices of killing, taking, capturing, transporting, storing, selling, using, and consuming wildlife and to carry out this title, and rules and regulations requiring daily, season, or annual use permits for the privilege of hunting and fishing in designated streams, lakes, or game management areas; and

c. Promulgation of rules and regulations to protect wildlife, the public, and the natural resources of this state in the event of fire, flood, disease, pollution, or other emergency situation without complying with Chapter 13 of Title 50, the "Georgia Administrative Procedure Act." Such rules and regulations shall have the force and effect of law upon promulgation by the board. (Ga.L. 1911, p. 137, SS 1; Ga.L. 1924, p. 101, SSSS 1, 3,4; Ga.L. 1931, p. 7, SS 25; Ga.L. 1937, p. 264, SSSS 1, 4, 9; Ga.L. 1943, p. 128, SSSS 1, 2, 14; Ga.L. 1955, p. 483, SS 3; Ga.L. 1972, p. 1015, SS 1527; Ga.L. 1973, p. 344, SS 1; Code 1933, SS 45-103, enacted by Ga.L. 1977, p. 396, SS 1; Ga.L. 1978, p. 816, SS 7; Ga.L. 1979, p. 420, SS 3; Ga.L. 1987, p. 179, SS 1)

6.13.2 General Description

The Official Code of Georgia Annotated, Title 27, Chapter I (known as the Game and Fish Code) provides the ownership of, jurisdiction over, and control of all wildlife to be vested in the State of Georgia. The section declares that custody of all wildlife in the State is vested with the Georgia Department of Natural Resources for management and regulation. The Wildlife Resources Division is the principal State agency vested with statutory authority for the

protection, management and conservation of terrestrial wildlife and fresh water wildlife resources, including fish, game, non-game, and endangered species. All licensing of recreational and commercial fish and wildlife activities, excluding shellfish, is performed by the Wildlife Resources Division. The Coastal Resources Division issues shellfish permits, regulates marine fisheries activities including the opening and closing of the commercial shrimp harvesting season, areas of shrimp harvest, regulates marine species size and creel limits, and enforces the National Shellfish Sanitation Program. The Commissioner of the Department of Natural Resources has directed that there will be cooperation and coordination between the Divisions of the Department in the administration of their respective responsibilities.

6.13.3 Consistency

The proposed project includes no feature to hunt, trap, fish, possess or transport any recreational and commercial fish or wildlife species. Therefore, no such license is required by the project. The proposed project is fully consistent with this policy.

6.14 GEORGIA HERITAGE

6.14.1 Policy Statement

Georgia Heritage Trust Act (O.C.G.A. 12-3-70, et seq.)
12-3-71. Legislative purpose.

The General Assembly finds that certain real property in Georgia, because it exhibits unique natural characteristics, special historical significance, or particular recreational value, constitutes a valuable heritage, which should be available to all Georgians, now and in the future. The General Assembly further finds that much of this real property, because of Georgia's rapid progress over the past decade, has been altered, that its value as part of our heritage has been lost, and that such property, which remains, is in danger of being irreparably altered. The General Assembly declares, therefore, that there is an urgent public need to preserve important and endangered elements of Georgia's heritage, so as to allow present and future citizens to gain an understanding of their origins in nature and their roots in the culture of the past and to ensure a future sufficiency of recreational resources. The General Assembly asserts the public interest in the state's heritage by creating the Heritage Trust Program which shall be the responsibility of the Governor and the Department of Natural Resources and which shall seek to protect this heritage through the acquisition of fee simple title or lesser interests in valuable properties and by utilization of other available methods. (Ga.L. 1975, p. 962, SS 2.)

6.14.2 General Description

Georgia's Heritage Trust Act of 1975 seeks to preserve certain real property in Georgia that exhibits unique natural characteristics, special historical significance, or particular recreational value. This Act created the Heritage Trust Commission, composed of 15 members appointed by the Governor who represent a variety of interests and expertise. The Commission served as an advisory body to the Governor and to the Board of the Department of Natural Resources, making recommendations concerning the identification, designation, and acquisition of heritage areas. Although this Act is still in Georgia law, the Commission's term expired and the implementation

and administration of many of the goals of the Act has been superseded by the Heritage 2000 Program.

6.14.3 Consistency

The proposed work would not be constructed until a cultural resource survey has been completed and coordinated with the Georgia State Historic Preservation Officer. The proposed action is fully consistent with this policy.

6.15 GROUNDWATER USE

6.15.1 Policy Statement.

Groundwater Use Act (O.C.G.A. 12-5-90, et seq.)
12-5-91. Declaration of policy.

The general welfare and public interest require that the water resources of the state be put to beneficial use to the fullest extent to which they are capable, subject to reasonable regulation in order to conserve these resources and to provide and maintain conditions, which are conducive to the development and use of water resources. (Ga.L. 1972, p. 976, SS 2.)

6.15.2 General Description

The Groundwater Use Act charges the Board of Natural Resources with the responsibility to adopt rules and regulations relating to the conduct, content, and submission of water conservation plans, including water conservation practices, water drilling protocols, and specific rules for withdrawal and utilization of groundwater. The Environmental Protection Division administers these rules and regulations. Groundwater withdrawals of greater than 100,000 gallons per day require a permit from the Environmental Protection Division. Permit applications that request an increase in water usage must also submit a water conservation plan approved by the Director of Environmental Protection Division (O.C.G.A. 12-5-96). The Environmental Protection Division has prepared a comprehensive groundwater management plan for coastal Georgia that addresses water conservation measures, protection from saltwater encroachment, reasonable uses, preservation for future development and economic development issues. The Memorandum of Agreement with the Environmental Protection Division ensures that permits issued under the Groundwater Use Act must be consistent with the Coastal Management Program.

6.15.3 Consistency

The proposed project would not adversely affect groundwater resources. Therefore, the proposed project is fully consistent with this policy.

6.16 HAZARDOUS WASTE

6.16.1 Policy Statement

Georgia Hazardous Waste Management Act (0.C.G.A. 12-8-60, et seq.)

12-8-61. Legislative policy.

It is declared to be the public policy of the State of Georgia, in furtherance of its responsibility to protect the public health, safety, and well-being of its citizens and to protect and enhance the quality of its environment, to institute and maintain a comprehensive state-wide program for the management of hazardous wastes through the regulation of the generation, transportation, storage, treatment, and disposal of hazardous wastes. (Ga.L. 1979, p. I 1 27, SS 2; Ga.L. 1992, p. 2234, SS 5.)

6.16.2 General Description

The Georgia Hazardous Waste Management Act describes a comprehensive, statewide program to manage hazardous wastes through regulating hazardous waste generation, transportation, storage, treatment, and disposal. Hazardous waste is defined by the Board of Natural Resources, and it includes any waste that the Board concludes is capable of posing a substantial present or future hazard to human health or the environment when improperly treated, transported, stored, disposed, or otherwise managed, based on regulations promulgated by the U.S. Environmental Protection Agency. The Hazardous Waste Management Act is administered and implemented by the Environmental Protection Division.

6.16.3 Consistency

The potential handling of mitigation site and turning basin sediments have been evaluated. No pollutants at hazardous levels are expected and disposal of the sediments in the Andrews Island confined dredged material management area is expected to minimize any potential contaminant effects so that no unacceptable adverse impacts would be expected from the proposed modification. The dredged sediments do not meet the definition of a hazardous waste and, therefore, do not require to be treated as such. The proposed project is fully consistent with this policy.

6.17 HISTORIC AREAS

6.17.1 Policy Statement

Historic Areas (0.C.G.A. 12-3-50, et seq.)
12-3-50. 1. Grants for the preservation of "historic properties"; additional powers and duties of department.

It is declared to be the public policy of the State of Georgia, in furtherance of its responsibility to promote and preserve the health, prosperity, and general welfare of the people, to encourage the preservation of historic properties, which have historical, cultural, and archeological significance to the state. (Code 1981, SS 12-3-50.1, enacted by Ga.L. 1986, p. 399, SS 1; Ga.L. 1996, p. 6, SS 12.)

6.17.2 General Description

The authority found at O.C.G.A. 12-3-50 provides the Department of Natural Resources with the powers and duties to "promote and increase knowledge and understanding of the history of this

State from the earliest times to the present, including the archeological, Indian, Spanish, colonial, and American eras, by adopting and executing general plans, methods, and policies for permanently preserving and marking objects, sites, areas, structures, and ruins of historic or legendary significance, such as trails, post roads, highways, or railroads; inns or taverns; rivers, inlets, millponds, bridges, plantations, harbors, or wharves; mountains, valleys, coves, swamps, forests, or Everglade; churches, missions, campgrounds, and places of worship; schools, colleges, and universities; courthouses and seats of government; places of treaties, councils, assemblies, and conventions; factories, foundries, industries, mills, stores, and banks; cemeteries and burial mounds; and battlefields, fortifications, and arsenals. Such preservation and marking may include the construction of signs, pointers, markers, monuments, temples, and museums, which structures may be accompanied by tablets, inscriptions, pictures, paintings, sculptures, maps, diagrams, leaflets, and publications explaining the significance of the historic or legendary objects, sites, areas, structures, or ruins." The Department is also required to "promote and assist in the publicizing of the historical resources of the State by preparing and furnishing the necessary historical material to agencies charged with such publicity; to promote and assist in making accessible and attractive to travelers, visitors, and tourists the historical features of the State by advising and cooperating with State, federal, and local agencies charged with the construction of roads, highways, and bridges leading to such historical-points." The Historical Preservation Division is charged with carrying out these duties, and coordinates its activities in the coastal area with the Coastal Resources Division.

6.17.3 Consistency

A cultural resource survey is planned for the additional areas covered by the proposed modification. Results of survey will be coordinated with the GASHPO and any cultural resource issues resolved. The proposed project is fully consistent with this policy.

6.18 NATURAL AREAS

6.18.1 Policy Statement

Georgia Natural Areas Act (O.C.G.A. 12-3-90, et seq.)
12-3-91. Legislative findings and declaration of purpose.

The General Assembly finds that there is an increasing nation-wide concern over the deterioration of man's natural environment in rural as well as urban areas; that there is a serious need to study the long-term effects of our civilization on our natural environment; that while the State of Georgia is still richly endowed with relatively undisturbed natural areas, these areas are rapidly being drastically modified and even destroyed by human activities; that it is of the utmost importance to preserve examples of such areas in their natural state, not only for scientific and educational purposes but for the general well-being of our society and its people. Therefore, it shall be the purpose and function of the Department of Natural Resources to:

a. Identify natural areas in the State of Georgia, which are of unusual ecological significance;

b. Use its influence and take any steps within its power to secure the preservation of such areas in an undisturbed natural state in order that such areas may:

(1) Be studied scientifically;

(2) Be used for educational purposes;

(3) Serve as examples of nature to the general public; and

(4) Enrich the quality of our environment for present and future generations; and

c. Recommend areas or parts of areas for recreational use. (Ga.L. 1969, p. 750, SS 2; Ga.L. 1972, p. 10 1 5, SS 151 1.)

12-3-92. "Natural areas" defined.

As used in this article, the term "natural areas" means a tract of land in its natural state which may be set aside and permanently protected or managed for the purpose of the preservation of native plant or animal communities, rare or valuable individual members of such communities, or any other natural features of significant scientific, educational, geological, ecological, or scenic value. (Ga.L. 1966, p.330, SS 2; Ga.L. 1969, p.750, SS 3.)

6.18.2 General Description

The Georgia Natural Areas Act authorizes the Department of Natural Resources to identify areas in the State of Georgia, which are of unusual ecological significance, and to secure the preservation of such areas in an undisturbed natural state. The purpose for such acquisition is to allow scientific study of the property, to educate, to "serve as examples of nature to the general public," and to "enrich the quality of our environment for present and future generations." Natural areas, as defined by the Act, are tracts of land in their natural state that are to be set aside and permanently protected or managed for the purpose of preserving natural plant or animal communities, rare or valuable members of such communities, or any other natural features of significant scientific, educational, geologic, ecological, or scenic value.

6.18.3 Consistency

The project contains no lands of unusual ecological significance which are in an undisturbed natural state. The proposed project is fully consistent with this policy.

6.19 OIL AND GAS AND DEEP DRILLING

6.19.1 Policy Statement

Georgia Oil and Gas and Deep Drilling Act (O.C.G.A. 12-440, et seq.)
12-441. Legislative findings and declaration of policy.

The General Assembly finds and declares that its duty to protect the health, safety, and welfare of the citizens of this state requires that adequate protection of underground fresh water supplies be assured in any drilling operation which may penetrate through any stratum which contains fresh water. This duty further requires that adequate protection be assured in any drilling or the use of such drilled wells in certain other environmentally sensitive areas or in other circumstances where the result of such drilling and use may endanger the health, safety, and welfare of the citizens of this state. It is not the policy of the General Assembly to regulate the drilling of shallow exploration or engineering holes except in such environmentally sensitive areas as defined in this part. The General Assembly further finds and declares that, with the current energy shortage which this state and nation face, it must encourage oil and gas exploration to identify new sources of energy, but not at the expense of our important natural resources such as residential, municipal, and industrial supplies of fresh water. The General Assembly further finds and declares that with an increase in oil exploration, it must provide assurances to persons engaging in such exploration that adequate safeguards regarding results of exploration will remain privileged information for a specified time. The General Assembly further finds and declares that it is in the public interest to obtain, protect, and disseminate all possible geologic information associated with drilling operations in order to further the purposes of future energy related research. (Ga.L. 1975, p. 966, SS 1.)

6.19.2 General Description

Georgia's Oil and Gas and Deep Drilling Act regulates oil and gas drilling activities to provide protection of underground freshwater supplies and certain “environmentally sensitive" areas. The Board of Natural Resources has the authority to implement this Act. The Act establishes requirements for drilling, casing, and plugging of wells for oil, gas, or mineral exploration: (1) to alleviate escape of gas or oil from one stratum to another; (2) to prevent the pollution of freshwater by oil, gas, salt water or other contaminants; (3) to prevent drowning of any stratum that might reduce the total ultimate recovery of gas or oil; and, (4) to prevent fires, waste, and spillage of contaminants such as oil.

6.19.3 Consistency

No drilling operation is proposed for this modification. Therefore, the proposed modification is fully consistent with this policy.

6.20 PHOSPHATE MINING

6.20.1 Policy Statement

Licenses to dig, mine, and remove phosphate deposits; restrictions on license holders. (O.C.G.A. 12-4-100, et seq.)
12-4-101. Restrictions on license holders.

Whenever any person discovers phosphate rock or phosphatic deposits in the navigable streams or waters of this state or in any public land on their banks or margins and files with the Secretary of State notice of such discovery and a description of the location thereof, he shall be entitled to receive from the Secretary of State a license giving him or his assigns the exclusive right, for ten

years from the date of the license, of digging, mining, and removing from such location and from an area for a distance of five miles in any or all directions therefrom the phosphate rock and phosphatic deposits that may be found therein, provided that persons receiving or holding such licenses shall in no way interfere with the free navigation of the streams and waters or the private rights of any citizen residing on or owning the lands upon the banks of such navigable rivers and waters; provided, further, that as long as the license remains in effect, no person, natural or artificial, shall have the privilege of locating a claim within 20 miles of any other claim for which he has received a license. (Ga.L. 1884-85, p. 125, SS 1; Civil Code 1895, SS 1726; Civil Code 1910, SS 1977; Code 1933, SS 43-401.)

6.20.2 General Description

The laws found at O.C.G.A. 12-4-100, et seq., describe the State's management of phosphate deposits. There is great interest in phosphate mining in Georgia. In fact, the citizens of Georgia developed the Coastal Marshlands Protection Act in an effort to limit potential adverse environmental impacts from a proposed phosphate mining operation. The Secretary of State is charged with the administration of this statute, and is networked with the Georgia Coastal Management Program.

6.20.3 Consistency

No mining of phosphates is proposed in this project. Therefore, the proposed project is fully consistent with this policy.

6.21 PROTECTION OF TIDEWATERS

6.21.1 Policy Statement.

Protection of Tidewaters Act (O.C.G.A. 52-1-1. et seq.)
52-1-2. Legislative findings and declaration of policy.

The General Assembly finds and declares that the State of Georgia became the owner of the beds of all tidewaters within the jurisdiction of the State of Georgia as successor to the Crown of England and by the common law. The State of Georgia continues to hold title to the beds of all tidewaters within the state, except where title in a private party can be traced to a valid Crown or state grant which explicitly conveyed the beds of such tidewaters. The General Assembly further finds that the State of Georgia, as sovereign, is trustee of the rights of the people of the state to use and enjoy all tidewaters which are capable of use for fishing, passage, navigation, commerce, and transportation, pursuant to the common law public trust doctrine. Therefore, the General Assembly declares that the protection of tidewaters for use by the state and its citizens has more than local significance, is of equal importance to all citizens of the state, is of state-wide concern, and, consequently, is properly a matter for regulation under the police powers of the state. The General Assembly further finds and declares that structures located upon tidewaters which are used as places of habitation, dwelling, sojournment, or residence interfere with the state's proprietary interest or the public trust, or both, and must be removed to ensure the rights of the state and the people of the State of Georgia to the use and enjoyment of such tidewaters. It is declared to be a policy of this state and the intent of this article to protect the tidewaters of the

state by authorizing the commissioner of natural resources to remove or require removal of certain structures from such tidewaters in accordance with the procedures and within the timetable set forth in this article. (Code 1981, SS 52-1-2, enacted by Ga.L. 1992, p. 2317, SS 1.)

6.21.2 General Description

The Protection of Tidewaters Act establishes the State of Georgia as the owner of the beds of all tidewaters within the State, except where title by a private party can be traced to a valid British Crown or State land grant. The Act provides the Department of Natural Resources the authority to remove those "structures" that are capable of habitation, or incapable of or not used for transportation. Permits for such structures may not extend past June 30, 1997. The Act provides procedures for removal, sale, or disposition of such structures. (This is similar to the Right of Passage Act, except that it is specific to tidewaters rather than all waters of Georgia.)

6.21.3 Consistency

The proposed action was coordinated with GADNR for its concurrence. Therefore, the proposed project is fully consistent with this policy.

6.22 RECREATIONAL DOCKS

6.22.1 Policy Statement

50-16-61. General supervision and office assignment (Under the Administrative Procedures Act, Revocable License Program)

The Governor shall have general supervision over all property of the state with power to make all necessary regulations for the protection thereof, when not otherwise provided for.

6.22.2 General Description

The provisions of O.C.G.A. 50-16-61 describe the general supervision of State properties as the responsibility of the Governor. Under this authority, the Department of Natural Resources, Coastal Resources Division issues Revocable Licenses for recreational docks on State-owned tidal water bottoms. In 1995, the Georgia Supreme Court found that the State owns fee simple title to the foreshore on navigable tidal waters and, as a result, owns the river's water bottoms up to the high water mark and may regulate the use of these tidelands for the public good. (Dorroh v. McCarthy 265 Ga. 750, 462 S.E. 2d 708 (1995)). The opinion of the State Attorney General states: "In managing tidelands, the Department of Natural Resources acts under the authority of this section and the Department's employment of the extension of property lines method of allocating use of State-owned water bottoms may be generally acceptable, but rigid adherence to such a policy when it denies deep water access to a riparian or littoral owner, may cause inequitable results (1993 Opinion Attorney General No. 93-25). As described in the State Properties Code (O.C.G.A. 50-16-30, et seq.), the term "Revocable License" means "the granting, subject to certain terms and conditions contained in a written revocable license or agreement, to a named person or persons (licensee), and to that person or persons only, of a revocable privilege to use a certain described parcel or tract of the property to be known as the

licensed premises for the named purpose." A Revocable License may be revoked, canceled, terminated, with or without cause, at any time by the licensor.

6.22.3 Consistency

No recreational docks are included in the proposed project. Therefore, this project is fully consistent with this policy.

6.23 RIGHT OF PASSAGE

6.23.1 Policy Statement

Right of Passage Act (O.C.G.A. 52-1-30, et seq.)
52-1-31. Legislative findings and declaration of policy.

The General Assembly finds and declares that by the common law the citizens of this state have an inherent right to use as highways all navigable streams and rivers which are capable of transporting boats loaded with freight in the regular course of trade either for the whole or part of the year and that this right of use extends to the entire surface of the stream or river from bank to bank. The General Assembly further finds that the common law regarding such right of use has not been modified by statute nor is it incompatible with the federal or state constitutions. Therefore, the General Assembly declares that ensuring the right of use by all the citizens of this state of navigable streams and rivers which are capable of transporting boats loaded with freight in the regular course of trade either for the whole or part of the year as highways has more than local significance, is of equal importance to all citizens of the state, is of state-wide concern, and, consequently, is properly a matter for regulation under the police powers of the state. The General Assembly further finds and declares that structures located upon navigable streams and rivers which are used as places of habitation, dwelling, sojournment, or residence interfere with the citizens' right to use the entire surface of such streams and rivers which are capable of transporting boats loaded with freight in the regular course of trade either for the whole or part of the year from bank to bank as highways and must be removed to ensure the rights of the citizens of this state to such usage. It is declared to be a policy of this state and the intent of this article to ensure such rights of the citizens of this state by authorizing the commissioner of natural resources to remove or require removal of certain structures from such streams and rivers which are capable of transporting boats loaded with freight in the regular course of trade either for the whole or part of the year in accordance with the procedures and within the timetable set forth in this article. (Code 1981, SS 52-1-31, enacted by Ga.L. 1992, p. 2317, SS 1.)

6.23.2 General Description

The Right of Passage Act declares the right of use of all navigable waterways of the state by all citizens of Georgia. The Act establishes the mechanism to remove “structures" that are capable of being used as a place of habitation, are not used as or are not capable of use as a means of transportation, and do not have a permit under the Act. Permits shall not be issued for a term ending after June 30, 1997. The Right of Passage Act is implemented by the Department of Natural Resources Law Enforcement Division. (This is similar to the Protection of Tidewaters Act, except that it is specific to all navigable waters rather than tidewaters Georgia.)

6.23.3 Consistency

The proposed action would improve navigation in Brunswick Harbor. The work is not expected to have more than minimal temporary impact to navigation. It would not extend out into the navigation channel. The proposed action is consistent with this policy.

6.24 RIVER CORRIDORS

6.24.1 Policy Statement

Mountain and River Corridor Protection Act (O.C.G.A. 12-2-1. et seq.)
12-2-8. Promulgation of minimum standards and procedures for protection of natural resources, environment, and vital areas of the state.

The local governments of the State of Georgia are of vital importance to the state and its citizens. The state has an essential public interest in promoting, developing, sustaining, and assisting local governments. The natural resources, environment, and vital areas of the state are also of vital importance to the state and its citizens. The state has an essential public interest in establishing minimum standards for land use in order to protect and preserve its natural resources, environment, and vital areas. The purpose of this Code section shall be liberally construed to achieve its purpose. This Code section is enacted pursuant to the authority granted the General Assembly in the Constitution of the State of Georgia, including, but not limited to, the authority provided in Article 111, Section VI, Paragraphs I and 11(a)(1) and Article IX, Section 11, Paragraphs Ill and IV.

The department is therefore authorized to develop minimum standards and procedures, in accordance with paragraph (2) of subsection (b) of Code Section 50-8-7.1 and in accordance with the procedures provided in Code Section 50-8-7.2 for the promulgation of minimum standards and procedures, for the protection of natural resources, environment, and vital areas of the state, including, but not limited to, the protection of mountains, the protection of river corridors, the protection of watersheds of streams and reservoirs which are to be used for public water supply, for the protection of the purity of ground water, and for the protection of wetlands, which minimum standards and procedures shall be used by local governments in developing, preparing, and implementing their comprehensive plans as that term is defined in paragraph (3) of subsection (a) of Code Section 50-8-2. (Code 1981, SS 12-2-8, enacted by Ga.L. 1989, p. 1317, SS 5. 1; Ga.L. 199 1, p. 1719, SS 1; Ga.L. 1992, p. 6. SS 12; Ga.L. 1993, p. 91, SS 12.)

6.24.2 General Description

The statute that is informally known as the Mountain and River Corridor Protection Act (O.C.G.A. 12-2-8) authorizes the Department of Natural Resources to develop minimum standards for the protection of river corridors (and mountains, watersheds, and wetlands) that can be adopted by local governments. The Act is administered by the Environmental Protection Division. All rivers in Georgia with an average annual flow of 400 cubic feet per second are covered by the Act, except those within the jurisdiction of the Coastal Marshlands Protection Act. Some of the major provisions of the Act include: requirements for a 100-foot vegetative buffer on both sides of rivers; consistency with the Georgia Erosion and Sedimentation Act; and

local governments must identify river corridors in land-use plans developed under their respective comprehensive planning acts.

Regional Development Centers are instrumental in helping local governments enact the provisions of this Act. The Coastal Georgia Regional Development Center prepared a Regional River Corridor Protection Plan for counties within their jurisdiction. The Plan describes the ten local governments and the associated rivers that are affected by the River Corridor Protection Act, and puts forward a regional plan for the protection of river corridors. Regional plans are preferable to having local governments prepare individual plans. The plan provides for construction of road crossings, acceptable uses of river corridors, maintenance of a vegetative buffer along the river for a minimum of 100 feet from the river's edge (residential structures are allowed within the buffer zone), timber production standards, wildlife and fisheries management, recreation, and other uses. The local governments within the Coastal Regional Development Center jurisdiction affected by the River Corridor Protection Act, and their respective rivers are listed below. Eight coastal counties and two coastal cities (Richmond Hill and Woodbine) are affected.

Adoption of language addressing the River Corridor Protection Act is required in local comprehensive plans. The following counties and cities have adopted a Regional River Corridor Protection Plan.

COUNTY/CITY	RIVER
Bryan County	Canoochee River Ogeechee River
City of Richmond Hill	Ogeechee River
Camden County	Satilla River St. Mary's River
City of Woodbine	Satilla River
Chatham County	Savannah River
Effingham County	Ogeechee River Savannah River
Glynn County	Altamaha River
Liberty County	Canoochee River
Long County	Altamaha River
McIntosh County	Altamaha River

The following coastal counties have not yet adopted a River Corridor Protection Plan (as of August 1997).

COUNTY/CITY	RIVER
Charlton County	St. Mary's River
Brantley County	Satilla River
Wayne County	Altamaha River

Jurisdiction of the River Corridor Protection Act extends along the above named rivers from the limit of Coastal Marshlands Protection Act jurisdiction upstream through the coastal counties.

6.24.3 Consistency

Waters adjacent to the project area are under the jurisdiction of the Coastal Marshlands Protection Act, rather than the River Corridor Protection Act. The proposed project is fully consistent with this policy.

6.25 SAFE DRINKING WATER

6.25.1 Policy Statement

Georgia Safe Drinking Water Act (0.C.G.A. 12-5-1 70, et seq.)
12-5-171. Declaration of policy; legislative intent; Environmental Protection Division to administer part.

As a guide to the interpretation and application of this part, it is declared to be the policy of the State of Georgia that the drinking waters of the state shall be utilized prudently to the maximum benefit of the people and that the quality of such waters shall be considered a major factor in the health and welfare of all people in the State of Georgia. To achieve this end, the government of the state shall assume responsibility for the quality of such waters and the establishment and maintenance of a water-supply program adequate for present needs and designed to care for the future needs of the state.

This requires that an agency of the state be charged with this duty and that it have the authority to require the use of reasonable methods, that is, those methods which are economically and technologically feasible, to ensure adequate water of the highest quality for water-supply systems. Because of substantial and scientifically significant variations in the characteristics, usage, and effect upon public interest of the various surface and underground waters of the state, uniform requirements will not necessarily apply to all waters or segments thereof. It is the intent of this part to confer discretionary administrative authority upon such agency to take the above and related circumstances into consideration in its decisions and actions in determining, under the conditions prevailing in specific cases, those procedures to best protect the public interests.

The Environmental Protection Division of the Department of Natural Resources shall be the state agency to administer the provisions of this part consistent with the above-stated policy. (Code 1933, SS 88-2601, enacted by Ga.L. 1964, p.499, SS 1; Ga.L. 1977, p.351, SS 1.)

6.25.2 General Description

The Georgia Safe Drinking Water Act of 1977 charges the Environmental Protection Division with the responsibility for maintaining the quality of drinking water and for maintaining a water-supply program adequate for present and future needs of the State. The Environmental Protection Division is designated as the agency to establish rules and policies for the proper administration of drinking water management programs.

6.25.3 Consistency

The proposed action would not impact drinking water supplies. The proposed project is fully consistent with this policy.

6.26 SCENIC RIVERS

6.26.1 Policy Statement.

Georgia Scenic Rivers Act (O.C.G.A. 12-5-350, et seq.)
12-5-352. Rivers comprising the Georgia Scenic River System.

The Georgia Scenic River System shall be comprised of the following:

a. That portion of the Jacks River contained within the Cohutta National Wilderness Area and located in Fannin and Murray counties, Georgia, which portion extends a length of approximately 16 miles;

b. That portion of the Conasauga River located within the Cohutta National Wilderness Area and located in Fannin, Gilmer, and Murray counties, Georgia, which portion extends a length of approximately 17 miles;

c. That portion of the Chattooga River and its West Fork which are now designated as part of the Chattooga National Wild and Scenic River and located in Rabun County, Georgia, which portion extends a length of approximately 34 miles; and (4) That portion of Ebenezer Creek from Long Bridge on County Road S 393 to the Savannah River and located in Effingham County, Georgia, which portion extends a length of approximately seven miles.

The Georgia Scenic River System shall also be comprised of any river or section of a river designated as a scenic river by Act or resolution of the General Assembly. (Ga.L. 1969, p. 933, SS 3; Ga.L. 1978, p. 2207, SS 1; Ga.L. 1981, p. 459, SS 1.)

6.26.2 General Description

The Georgia Scenic Rivers Act of 1969 defines "scenic river" to mean certain rivers or section of rivers that have valuable scenic, recreational, or natural characteristics that should be preserved for the benefit and enjoyment of present and future generations. Certain sections of rivers are named in the Act, and the process for designating other sections of Georgia rivers is described. The Georgia Scenic Rivers Act is administered by the Environmental Protection Division.

6.26.3 Consistency

The project area does not include any rivers covered under this act. The project is fully consistent with this policy.

6.27 SCENIC TRAILS

6.27.1 Policy Statement

Georgia Scenic Trails Act (O.C.G.A. 12-3-110, et seq.)
12-3-111. Legislative purpose.

In order to provide for the increasing outdoor recreation needs of an expanding population with an increasing amount of leisure time, in order to promote the enjoyment and appreciation of the outdoor areas of Georgia, and in order to provide for a healthful alternative to motorized travel, trails should be established in urban, suburban, rural, and wilderness areas of Georgia. Therefore, the purpose of this article is to provide for a Georgia Scenic Trails System. (Ga.L. 1972, p. 142, SS 2.)

6.27.2 General Description

The Georgia Scenic Trails Act authorizes the Department of Natural Resources to establish a Scenic Trails System in Georgia. The Department is authorized to construct, maintain, and manage trails on lands acquired through purchase, easement, lease or donation. The purpose is to create a balanced system of trails throughout the State, including urban, bicycle, horse, rural hiking, primitive hiking, historical, bikeways and combination trails. The Georgia Department of Transportation is authorized to construct the bicycle trails and bikeways after the Department of Natural Resources has determined their routes.

6.27.3 Consistency

The proposed action does not involve lands that could be considered suited for establishing a scenic trail. The proposed project is fully consistent with this policy.

6.28 SEPTIC TANKS

6.28.1 Policy Statement

Title 31 -- Health (O.C.G.A. Title 31 generally) (Septic Tank Law)
31-2-7. Standards for individual sewage management systems.

The Department of Human Resources shall have the authority as it deems necessary and proper to adopt statewide minimum standards for on-site, individual sewage management systems, including but not limited to standards for the size and construction of septic tanks. The Department is authorized to require that any on-site, individual sewage management system be examined and approved prior to allowing the use of such system in the state. Any on-site, individual sewage management system which has been properly approved shall, by virtue of such approval and by operation of law, be approved for installation in every county of the state; provided, however, that such on-site, individual sewage management system shall be required to meet local regulations authorized by law. Upon written request of three or more health districts, the department is authorized to require the reexamination of any such system or component thereof, provided that documentation is submitted indicating unsatisfactory service of such system or component thereof. Before any such examination or reexamination, the department may require the person, persons, or organization manufacturing or marketing the system to reimburse the department or its agent for the reasonable expenses of such examination. (Code 1981, SS 31-2-7, enacted by Ga.L 1992, p. 3308, SS 1; Ga.L. 1994, p. 1777, SS 1.)

31-3-5.1. Regulations for septic tanks for individual sewage management systems in unincorporated areas; conformity to building permit.

No building permit for the construction of any residence, building, or other facility which is to be served by a septic tank or individual sewage management system shall be issued by or pursuant to the authority of a county governing authority unless the septic tank or individual sewage management system installation permit is in conformity with any statewide minimum standards for sewage management systems or the rules and regulations of the county board of health adopted pursuant to the authority of subsection (a) of this Code section. No person, firm, corporation, or other entity shall install a septic tank or individual sewage management system in violation of any state-wide minimum standards or the regulations of a county board of health adopted pursuant to the authority of subsection (a) of the Code section. Each county governing authority shall provide by ordinance or resolution for the enforcement of the provisions of this subsection. (Code 198 1, SS 31-3-5. 1, enacted by Ga.L. 1986, p. 227, SS 1; Ga.L. 1992, p. 3308. SS 2; Ga.L. 1994, p. 1777, SS 2.)

6.28.2 General Description

As stated above, the standards and regulations for individual sewage management systems are found at O.C.G.A. 31-2-7 and 31-3-5.1. The Department of Human Resources and the county boards of health are described and established by Title 31. There are other references for managing septic systems throughout the Code, including references within the River Corridor Protection Act (O.C.G.A. 12-2-8), the Georgia Water Quality Control Act (O.C.G.A. 12-5-20), and others, which make reference to safe siting of septic systems to ensure that leakage from those systems does not infiltrate the waters of the State. The county board(s) of health are provided the authority and the responsibility of ensuring safe installation and maintenance of septic systems.

6.28.3 Consistency

No septic tanks are proposed as part of this project. The proposed project is fully consistent with this policy.

6.29 SHELLFISH

6.29.1 Policy Statement

Game and Fish Code (O.C.G.A. 27-1-1. et seq.)
27-4-190. Master collecting and picker's permits; hours for taking shellfish; recreational harvesting.

(a) It shall be unlawful to take or possess shellfish in commercial quantities or for commercial purposes without first having obtained a master collecting permit or without proof of purchase that such shellfish were purchased from a certified shellfish dealer. Master collecting permits shall specify whether the permittee is authorized to take oysters, clams, or other shellfish and shall only be issued to persons certified by the Department of Agriculture to handle shellfish unless permission to take and possess shellfish for mariculture purposes has been granted by the department as described in subsection (d) of Code Section 27-4-197. Such permits shall be provided annually at no cost by the department but shall only be issued to persons with the right to harvest shellfish pursuant to Code Sections 44-8-6 through 44-8-8 or to holders of leases from such persons. A permittee may request authorization from the department for employees or agents, who shall be referred to as pickers, of such permittee to take shellfish from permitted areas. Such request shall be in writing to the department and shall include the name, address, and personal commercial fishing license number of the picker. It shall be unlawful for pickers to take or possess shellfish as authorized under their employer's master collecting permit unless they carry on their person while taking or in possession of shellfish a picker's permit as provided by the department indicating the exact area and circumstances allowed for taking. Such pickers' permits and charts shall be provided annually by the department at no cost and shall be in a form as prescribed by the department. Pickers must possess a valid personal commercial fishing license as provided for in Code Section 27-4-110 and, when a boat is used, a valid commercial fishing boat license as provided in Code Section 27-2-8. Master collecting permits and pickers' permits shall not be issued to persons who have been convicted three times in the two years immediately preceding the filing of an application for a permit of violations of this Code section, subsection (b) of Code Section 27-4-193, subsections (a) and (b) of Code Section 27-4-195, or Code Section 27-4-199. Master collecting permits and pickers' permits issued to master collecting permittee’s agents shall be surrendered to the department upon termination of Department of Agriculture certification for handling shellfish, upon termination of right to harvest shellfish, or upon violation of any provision of this title. If a picker is removed from authorization to take shellfish by the master collecting permittee, that picker shall immediately surrender to the department his picker's permit. It shall be unlawful to possess unauthorized pickers' permits or pickers' permits issued to another person.

(c) It shall be unlawful for any person to take or possess shellfish from unauthorized locations and during unauthorized periods of taking. It shall be unlawful to take shellfish except

between the hours of one-half hour before sunrise and one-half hour after sunset. (Code 1981, SS 27-4-190, enacted by Ga. L. 1991, p. 693, SS 6.)

27-4-193. Taking shellfish from unapproved growing areas; operating facility for controlled purification of shellfish.

(a) As used in this Code section, the term "approved growing area" means that area or areas approved by the department for shellfish harvesting and "unapproved growing area" means all other areas.

(b) It shall be unlawful to take or possess shellfish from unapproved growing areas except at such times and places as the department may establish. The department is authorized to close approved growing areas to allow transplanting at any time between January 1 and December 31. It shall be unlawful to engage in transplanting of shellfish from unapproved growing areas without written authorization from the department. Such authorization may condition the transplanting upon compliance with current, sound principles of wildlife research and management. In approving growing areas, the department shall consider such current guidelines as have been established by the National Shellfish Sanitation Program at the time of approval of the growing areas and current, sound principles of wildlife research and management. (Code 1981, SS 27-4-193, enacted by Ga.L. 1991, p. 693, SS 6; Ga.L. 1992, p. 6, SS 27.)

6.29.2 General Description

The provisions of O.C.G.A. Title 27 (Game and Fish Code), Part 4 describe the regulation of shellfish in Georgia. The provisions describe the requirements for a commercial shellfish harvester to have a license, issued by the Department of Natural Resources pursuant to the requirements of the U.S. Department of Agriculture. The Department also is authorized to approve shellfish growing areas for commercial harvest, and must consider the guidelines established by the National Shellfish Sanitation Program. The Department conducts water sampling in areas that are approved for shellfish in conjunction with the National Shellfish Sanitation Program.

6.29.3 Consistency

No commercial shellfish harvesting is proposed as part of this project. The proposed action would not adversely impact any approved shellfish growing area. The proposed project is fully consistent with this policy.

6.30 SHORE PROTECTION

6.30.1 Policy Statement

Shore Protection Act (O.C.G.A. 2-5-230, et seq.)
12-5-231. Legislative findings and declarations.

The General Assembly finds and declares that coastal sand dunes, beaches, sandbars, and shoals comprise a vital natural resource system, known as the sand-sharing system, which acts as a

buffer to protect real and personal property and natural resources from the damaging effects of floods, winds, tides, and erosion. It is recognized that the coastal sand dunes are the most inland portion of the sand-sharing system and that because the dunes are the fragile product of shoreline evolution, they are easily disturbed by actions harming their vegetation or inhibiting their natural development. The General Assembly further finds that offshore sandbars and shoals are the system's first line of defense against the potentially destructive energy generated by winds, tides, and storms, and help to protect the onshore segment of the system by acting as reservoirs of sand for the beaches. Removal of sand from these bars and shoals can interrupt natural sand flows and can have unintended, undesirable, and irreparable effects on the entire sand-sharing system, particularly when the historical patterns of sand and water flows are not considered and accommodated. Also, it is found that ocean beaches provide an unparalleled natural recreation resource which has become vitally linked to the economy of Georgia's coastal zone and to that of the entire state. The General Assembly further finds that this natural resource system is costly, if not impossible, to reconstruct or rehabilitate once adversely affected by man related activities and is important to conserve for the present and future use and enjoyment of all citizens and visitors to this state and that the sand-sharing system is an integral part of Georgia's barrier islands, providing great protection to the state's marshlands and estuaries. The General Assembly further finds that this sand-sharing system is a vital area of the state and is essential to maintain the health, safety, and welfare of all the citizens of the state. Therefore, the General Assembly declares that the management of the sand-sharing system has more than local significance, is of equal importance to all citizens of the state, is of state-wide concern, and consequently is properly a matter for regulation under the police power of the state. The General Assembly further finds and declares that activities and structures on offshore sandbars and shoals, for all purposes except federal navigational activities, must be regulated to ensure that the values and functions of the sand-sharing system are not impaired. It is declared to be a policy of this state and the intent of this part to protect this vital natural resource system by allowing only activities and alterations of the sand dunes and beaches which are considered to be in the best interest of the state and which do not substantially impair the values and functions of the sand-sharing system and by authorizing the local units of government of the State of Georgia to regulate activities and alterations of the ocean sand dunes and beaches and recognizing that, if the local units of government fail to carry out the policies expressed in this part, it is essential that the department undertake such regulation. (Code 1981, SS12-5-231, enacted by Ga.L. 1992, p.1362, SS 1.)

6.30.2 General Description

The Shore Protection Act is the primary legal authority for protection and management of Georgia's shoreline features including sand dunes, beaches, sandbars, and shoals, collectively known as the sand-sharing system. The value of the sand-sharing system is recognized as vitally important in protecting the coastal marshes and uplands from Atlantic storm activity, as well as providing valuable recreational opportunities.

The Shore Protection Act limits activities in shore areas and requires a permit for certain activities and structures on the beach. Construction activity in sand dunes is limited to temporary structures such as crosswalks, and then only by permit from the Georgia Coastal Resources Division. Structures such as boat basins, docks, marinas, and boat ramps are not allowed in the dunes. Shore Permits, which are administered by the Coastal Resources Division, are not

granted for activities that are inconsistent with the Georgia Coastal Management Program. The Shore Protection Act prohibits operation of any motorized vehicle on or over the dynamic dune fields and beaches, except as authorized for emergency vehicles, and governmental vehicles for beach maintenance or research. The Shore Protection Act also prohibits storage or parking of sailboats, catamarans, or other marine craft in the dynamic dune field.

Direct permitting authority regarding any proposed facilities located within the jurisdictional area the Shore Protection Act lies with the Shore Protection Committee. These permits are administered by the Georgia Coastal Resources Division. This authority is a very important aspect of the Georgia Coastal Management Program, since recreation at the water's edge is a significant demand. Providing public access and recreational opportunities at or near the beach while protecting the sand sharing system is an important component of the Program.

6.30.3 Consistency

The proposed action would reduce the amount of impacts to saltmarsh. Furthermore, the proposed work was coordinated with GADNR Coastal Resources Division. The proposed project is fully consistent with this policy.

6.31 SOLID WASTE MANAGEMENT

6.31.1 Policy Statement

Georgia Comprehensive Solid Waste Management Act (0.C.G.A. 12-8-21, et seq.)
12-8-21. Declaration of policy; legislative intent.

(a) It is declared to be the policy of the State of Georgia, in furtherance of its responsibility to protect the public health, safety, and well-being of its citizens and to protect and enhance the quality of its environment, to institute and maintain a comprehensive state-wide program for solid waste management which will assure that solid waste facilities, whether publicly or privately operated, do not adversely affect the health, safety, and well-being of the public and do not degrade the quality of the environment by reason of their location, design, method of operation, or other means and which, to the extent feasible and practical, makes maximum utilization of the resources contained in solid waste.

(b) It is further declared to be the policy of the State of Georgia to educate and encourage generators and handlers of solid waste to reduce and minimize to the greatest extent possible the amount of solid waste which requires collection, treatment, or disposal through source reduction, reuse, composting, recycling, and other methods and to promote markets for and engage in the purchase of goods made from recovered materials and goods which are recyclable. (Code 1981, SS 12-8-21, enacted by Ga.L. 1990, p. 412, SS 1; Ga.L. 1992, p. 3259, SS 1; Ga.L. 1993, p. 399, SSSS 1, 2.)

6.31.2 General Description

The Georgia Comprehensive Solid Waste Management Act defines the rules regarding solid waste disposal in the State. Solid waste handling facilities must be permitted by the State unless

an individual is disposing of waste from his own residence onto land or facilities owned by him and disposal of such waste does not adversely affect human health (O.C.G.A. 12-8-30.10). State law mandates that a county, municipality, or group of counties beginning a process to select a site for municipal waste disposal must first call at least one public meeting.

In addition to the above-named jurisdictions, a regional solid waste management authority must hold at least one meeting within the jurisdiction of each participating authority. Meetings held to make siting decisions for any publicly or privately owned municipal solid waste disposal facility must be publicized before the meeting is held (O.C.G.A. 12-8-26). Each city and county is required to develop a comprehensive solid waste management plan that, at a minimum, provides for the assurance of adequate solid waste handling capability and capacity for at least ten years. This plan must identify those sites that are not suitable for solid waste facilities based upon environmental and land use factors (O.C.G.A. 12-8-3 1. 1); these factors may include historic and archeological sites. Solid waste facilities within 5,708 yards of a national historic site are not permitted (O.C.G.A. 12-8-25. 1). Solid waste facilities on property owned exclusively by a private solid waste generator are generally exempt from these provisions. Local governments have the authority to zone areas of environmental, historic, or cultural sensitivity and to protect those sites from becoming waste disposal areas regardless of whether they are public or privately owned.

6.31.3 Consistency

The dredged sediments do not meet the definition of a solid waste and, therefore, do not require to be treated as such. The proposed project is fully consistent with this policy.

6.32 SURFACE MINING

6.32.1 Policy Statement

Georgia Surface Mining Act (O.C.G.A. 12-4-70, et seq.)
12-4-71. Legislative purpose; duty of Environmental Protection Division to administer part.

(a) The purposes of this part are:

(1) To assist in achieving and maintaining an efficient and productive mining industry and to assist in increasing economic and other benefits attributable to mining;

(2) To advance the protection of fish and wildlife and the protection and restoration of land, water, and other resources affected by mining;

(3) To assist in the reduction, elimination, or counteracting of pollution or deterioration of land, water, and air attributable to mining;

(4) To encourage programs which will achieve comparable results in protecting, conserving, and improving the usefulness of natural resources to the end that the most desirable conduct of mining and related operations may be universally facilitated;

(5) To assist in efforts to facilitate the use of land and other resources affected by mining so that such use may be consistent with sound land use, public health, and public safety, and to this end to study and recommend, wherever desirable, techniques for the improvement, restoration, or protection of such land and other resources.

(b) The Environmental Protection Division of the department shall administer this part consistent with the above-stated purposes. (Ga.L. 1968, p. 9, SS 2.)

6.32.2 General Description

Georgia's Surface Mining Act regulates all surface mining in Georgia, including the coastal zone. Dredging or ocean mining of materials are not directly regulated by State authority, except that sand and gravel operations are subject to the Shore Protection Act.

6.32.3 Consistency

Dredging is not an activity covered by this policy. The proposed project is fully consistent with this policy.

6.33 UNDERGROUND STORAGE TANKS

6.33.1 Policy Statement

Georgia Underground Storage Tank Act (O.C.G.A. 12-3-1. et seq.)
12-13-2. Public policy.

(a) It is declared to be the public policy of the State of Georgia, in furtherance of its responsibility to protect the public health, safety, and well-being of its citizens and to protect and enhance the quality of its environments, to institute and maintain a comprehensive state-wide program for the management of regulated substances stored in underground tanks.

(b) It is the intent of the General Assembly that the Environmental Protection Division of the Department of Natural Resources shall be designated as the state agency to administer the provisions of this chapter. The director of the Environmental Protection Division of the Department of Natural Resources shall be the official charged with the primary responsibility for the enforcement of this chapter. In exercising any authority or power granted by this chapter and in fulfilling duties under this chapter, the director shall conform to and implement the policies outlined in this chapter.

(c) It is the intent of the General Assembly to create an environmental assurance fund which, in addition to those purposes set forth in subsections (f) and (g) of Code Section 1 2-1 3-9, may also be used by owners and operators as an alternate to insurance purchased from insurance companies for purposes of evidencing financial responsibility for taking corrective action and compensation of third parties for bodily injury and property damage caused by sudden and non-sudden accidental releases arising from operating underground storage tanks. (Code 1981, SS 12-13-2, enacted by Ga.L. 1988, p. 2072, SS 1; Ga.L. 1989, p. 14, SS 12.)

6.33.2 General Description

The Underground Storage Tank Law provides the authority for the Environmental Protection Division to define the State criteria for operating, detecting releases, corrective actions, and enforcement of the utilization of underground storage tanks (USTs). The rules, found at Chapter 391-3-15 of the Rules and Regulations of the State of Georgia, establish minimum standards and procedures to protect human health and safety and to protect and maintain the quality of groundwater and surface water resources from environmental contamination that could result from any releases of harmful substances stored in such tanks. These requirements reflect the federal law regulating underground storage tanks as well as the applicable State rules. All facilities with underground storage tanks are subject to these requirements. The Memorandum of Agreement between the Coastal Resources Division and the Environmental Protection Division ensures cooperation and coordination in the implementation of UST standards within the coastal area.

6.33.3 Consistency

No installations of USTs are proposed in this action. The proposed project is fully consistent with this policy.

6.34 WATER QUALITY

6.34.1 Policy Statement

Georgia Water Quality Control Act (O.C.G.A. 12-5-20)
12-5-21. Declaration of policy, legislative intent.

(a) The people of the State of Georgia are dependent upon the rivers, streams, lakes, and subsurface waters of the state for public and private water supply and for agricultural, industrial, and recreational uses. It is therefore declared to be the policy of the State of Georgia that the water resources of the state shall be utilized prudently for the maximum benefit of the people, in order to restore and maintain a reasonable degree of purity in the waters of the state and an adequate supply of such waters, and to require where necessary reasonable usage of the waters of the state and reasonable treatment of sewage, industrial wastes, and other wastes prior to their discharge into such waters. To achieve this end, the government of the state shall assume responsibility for the quality and quantity of such water resources and the establishment and maintenance of a water quality and water quantity control program adequate for present needs and designed to care for the future needs of the state, provided that nothing contained in this article shall be construed to waive the immunity of the state for any purpose.

(b) The achievement of the purposes described in subsection (a) of this Code section requires that the Environmental Protection Division of the Department of Natural Resources be charged with the duty described in that subsection, and that it have the authority to regulate the withdrawal, diversion, or impoundment of the surface waters of the state, and to require the use of reasonable methods after having considered the technical means available for the reduction of pollution and economic factors involved to prevent and control the pollution of the waters of the state.

(c) Further, it is the intent of this article to establish within the executive branch of the government administrative facilities and procedures for determining improper usage of the surface waters of the state and pollution of the waters of the state, and to confer discretionary administrative authority upon the Environmental Protection Division to take these and related circumstances into consideration in its decisions and actions in determining, under the conditions and specific cases, those procedures which will best protect the public interest. (Ga.L. 1957, p. 629, SS 2; Ga.L. 1964, p. 416, SS 2; Ga.L. 1977, p. 368, SS 1.)

6.34.2 General Description

The Georgia Water Quality Control Act grants the Environmental Protection Division authority to ensure that water uses in the State of Georgia are used prudently, are maintained or restored to a reasonable degree of purity, and are maintained in adequate supply. In the administration of this law, the Environmental Protection Division can revise rules and regulations pertaining to water quality and quantity, set permit conditions and effluent limitations, and set permissible limits of surface water usage for both consumptive and non-consumptive uses through the Board of Natural Resources. Through a Memorandum of Agreement between the Environmental Protection Division and the Coastal Resources Division, the rules and permits of the Environmental Protection Division are administered in a manner consistent with the enforceable policies of the Coastal Management Program.

The authority to regulate the rivers, streams, lakes, and subsurface waters throughout the State for public and private water supply and agricultural, industrial, and recreational uses is provided to the Environmental Protection Division. The Act makes it unlawful for any person to dispose of sewage, industrial wastes, or other wastes, or to withdraw, divert, or impound any surface waters of the State without a permit. Tourism and recreational entities, manufacturing and transportation facilities, and other activities found in the coastal zone covered under the policies of the Georgia Coastal Management Program are responsible for compliance with the regulations implementing the Georgia Water Quality Control Act.

6.34.3 Consistency

The sediments at the sites associated with the proposed modification have been evaluated and are expected to be free of pollutants at toxic levels. Discharges of effluent from the Andrews Island dredged material management area are expected to meet all state water quality standards. Water quality certification for the proposed modifications has been received. This additional modification to the mitigation plan is not expected to have any different water quality impacts under Clean Water Act jurisdiction that have not already been evaluated. The District believes the proposed action is fully consistent with this policy.

6.35 WATER WELLS

6.35.1 Policy Statement

Water Wells Standards Act (O.C.G.A. 12-5-120, et seq.)
12-5-121. Legislative intent.

It is the intent of the General Assembly to provide in this part for the application of standards for the siting, construction, operation, maintenance, and abandonment of wells and boreholes so as to protect the public health and the water resources of this state. (Ga.L. 1976, p. 974, SS 2; Ga.L. 1985, p. 1192, SS 1.)

6.35.2 General Description

The Water Wells Standards Act of 1985 provides standards for siting, constructing, operating, maintaining, and abandoning wells and boreholes. The Act requires that individual and non-public wells must be located as far removed from known or potential sources of pollutants as possible. Licensing requirements for drilling contractors are established by the Act, as well a State Water Well Standards Advisory Council. The Council is authorized to adopt and amend rules and regulations that are reasonable to govern the licensing of well contractors. Compliance with the Water Wells Standards Act is required for all activities that utilize well water. The provisions of the Act are enforceable under Georgia law. The Council may file a petition for an injunction in the appropriate superior court against any person that has violated any provisions of the Act.

6.35.3 Consistency

No drilling operation is proposed which is likely to penetrate through a geologic stratum which contains a fresh water aquifer used for drinking purposes. The proposed project is fully consistent with this policy.

6.36 WILDFLOWER PRESERVATION

6.36.1 Policy Statement

The Wildflower Preservation Act (O.C.G.A. 12-6-170, et seq.)
12-6-172. Powers and duties of Department and Board of natural Resources as to wildflower preservation.

(a) The Department of Natural Resources shall from time to time designate as a protected species and species of plant life within this state which it may determine to be rare, unusual, or in danger of extinction, and upon such designation such species will become subject to the protection of this article. (Ga.L. 1973, p. 333, SS 3; Ga.L. 1982, p. 3, SS 12.)

6.36.2 General Description

The Wildflower Preservation Act provides for designation of and protection of plant species that are rare, unusual, or in danger of extinction. Additional species may be added by the Board of Natural Resources at any time. The protection offered to these species is limited to those that are found on public lands of the State. It is a misdemeanor to transport, carry, convey, sell, cut, pull up, dig up, or remove protected species listed by this Act.

6.36.3 Consistency

The proposed action work would not impact any land which would contain wildflowers that are considered rare, unusual, or in danger of extinction. The proposed project is fully consistent with this policy.

7.0 OTHER MANAGEMENT AUTHORITIES

The paragraphs in this section describe management authorities which provide the Coastal Resources Division with additional tools and mechanisms to accomplish the goals of the Georgia Coastal Management Program. Although these authorities are not listed as policies of the Program, they are laws of the State. Most of the statutes referenced here are primarily procedural. These laws and programs are not considered enforceable policies of the Georgia Coastal Management Program and thus are not used in preparing or reviewing Federal Consistency Determinations and certifications.

7.1 COORDINATED AND COMPREHENSIVE PLANNING BY COUNTIES AND MUNICIPALITIES

(Informally known as the Georgia Planning Act)

The Georgia Planning Act (O.C.G.A. 45-12-200, et seq.) requires each local government to develop a comprehensive plan to guide growth and development as a condition to receive State funding assistance. Under the Georgia Planning Act, minimum planning standard was developed for the preparation, adoption, and implementation of local comprehensive plans. The planning standards constitute a three-step planning process: inventory and assessment; needs and goals; and implementation and strategy.

The Act establishes Regional Development Centers (RDCs) throughout Georgia. Three of these Centers have jurisdiction within the coastal zone: the Southeast Georgia RDC includes Brantley and Charlton counties; the Heart of Georgia RDC includes Wayne County; and the Coastal Georgia RDC includes the remaining eight counties (Bryan, Camden, Chatham, Effingham, Glynn, Liberty, Long, and McIntosh). The role of the RDCs is to work with local and county governments individually and on a regional basis to improve services and programs, consistent with local comprehensive plans, to benefit residents of the region. The Coastal Management Program works closely with the RDCs to implement the policies of the Program. Many of the goals, objectives and policies of the Georgia Coastal Management Program can be achieved by local comprehensive planning processes and implemented through local land-use controls and the public infrastructure.

The Coastal Georgia RDC has jurisdiction for projects located within Glynn County. The proposed action will be coordinated with interested agencies and the public. It is not expected that the proposed action would conflict with any aspect of an existing long term comprehensive land use plan.

7.2 GEORGIA ADMINISTRATIVE PROCEDURES ACT

The Georgia Administrative Procedures Act (O.C.G.A. 50-13-4, et seq.) establishes the procedural requirements for adoption, amendment, or repeal of rules and regulations, among other things. New rules require at least 30 days notice of intended action. Similar public comment requirements are required for federal regulatory actions. Public comment and input is important for any regulatory action, both to provide an opportunity for presentation of citizens' ideas and concerns and to provide time for implementation by those entities that may be potentially impacted.

The 30-day public comment period for the draft EA -- which is a component of the Federal NEPA process -- provides a formal avenue for the public to provide input on the proposed project. The District believes the proposed construction complies fully with the spirit of the Georgia Administrative Procedures Act.

7.3 GEORGIA LITTER CONTROL LAW

The Georgia Litter Control Law (O.C.G.A. 16-7-40, et seq.) makes it unlawful for any person or persons, "...to dump, deposit, throw, or leave or to cause or permit the dumping, placing, throwing, or leaving of litter on any public or private property in this state or any waters in this state" unless the situation meets one of three conditions. Litter may be disposed at a site if (1) the property is designated as a litter disposal site, (2) litter is placed in a proper receptacle, and/or (3) litter is disposed of by permission of the property owner in a manner consistent with the public welfare.

The Project's construction contracts will contain provisions which require the contractors to remove all construction equipment from the Project sites as part of their demobilization activities. The District believes that implementation of that contract provision will ensure that the Project complies with the intent of the Georgia Litter Control Law.

7.4 GEORGIA UNIFORM CONSERVATION EASEMENT ACT

The Georgia Uniform Conservation Easement Act (O.C.G.A. 44-10-1, et seq.*)* defines "conservation easement" to mean a non-possessory interest in real property, with limitations or affirmative obligations, the purposes of which include retaining or protecting natural property; assuring its availability for agricultural, forest, recreational, or open space use; protecting natural resources; maintaining or enhancing air or water quality; or preserving the historical, archeological, or cultural aspects of real property. A landholder may be a government agency or a charitable organization.

This does not apply.

8.0 STATE PROGRAMS

The following State programs contribute towards effective management of Georgia's coastal resources. As non-regulatory programs, they do not constitute enforceable policies of the

Program and are not used in Federal consistency reviews. The District has included a discussion of these programs in this Consistency Determination because of the goals of these programs.

8.1 ACRES FOR WILDLIFE PROGRAM

The Acres for Wildlife Program is administered by the Non-game and Endangered Wildlife Program of the Georgia Department of Natural Resources to provide technical assistance to private landowners for resource and habitat management. The Program helps to identify wildlife habitat and provides advice to help the landowner manage the property for the welfare of the wildlife.

Does not apply.

8.2 CERTIFIED BURNER PROGRAM

The Certified Burner Program is administered by the Georgia Forestry Commission to educate the citizens of Georgia about safe burning techniques. The Georgia General Assembly declared that prescribed burning is a resource protection and land management tool that benefits the safety of the public, Georgia's forest resources, the environment and the economy of the State (O.C.G.A. 12-6-146).

The construction work does not include any prescribed burning.

8.3 COMMUNITY WILDLIFE PROJECT

The Community Wildlife Project is the only wildlife habitat certification program directed to the community as a whole. It is designed to encourage and improve management of wildlife habitats found in urban, suburban, and semi-rural areas. The program is administered by local garden clubs affiliated with the Garden Clubs of Georgia in concert with the Non-game and Endangered Wildlife Program of the Georgia Department of Natural Resources. The Community Wildlife Project establishes minimum criteria for community-based habitat management projects.

Does not apply.

8.4 FOREST STEWARDSHIP PROGRAM

The Forest Stewardship Program is administered by the Georgia Forestry Commission in cooperation with the Non-game and Endangered Wildlife Division of the Department of Natural Resources. The Program is designed to provide technical assistance to private landowners for management of forest lands. A concomitant Stewardship Incentive Program provides State funding on a cost-sharing basis to implement certain aspects of the program.

Does not apply.

8.5 HERITAGE 2000

Heritage 2000 is a public-private partnership program designed by Governor Miller to acquire historic property and resources throughout Georgia. The initiative is modeled after Preservation 2000.

Does not apply.

8.6 NON-GAME WILDLIFE CONSERVATION AND HABITAT ACQUISITION FUND

Georgia's Non-game Wildlife Conservation and Habitat Fund (O.C.G.A. 12-3-600, et seq.) provides the Department of Natural Resources a mechanism to establish non-game wildlife conservation and habitat acquisition, as well as education programs to enhance the protection of non-game flora and fauna. The Department of Natural Resources may solicit voluntary contributions through an income tax return contribution mechanism, by offers to match contributions, or by fund raising or other promotional techniques. Any funds collected are placed into a "Non-game Wildlife Conservation and Wildlife Habitat Acquisition Fund."

Does not apply.

8.7 PRESERVATION 2000

Preservation 2000 is a three-year program implemented by Governor Miller in 1994 to acquire approximately 100,000 acres for the State of Georgia to preserve natural areas, historic sites, parks, wildlife management areas and similar sites. It is funded by a $65 million bond fund, approximately $1.45 million in gifts, and small amounts of Federal funds. Since its inception, over 84,000 acres have been acquired and approximately 33,000 acres are under negotiation during the summer of 1997. There were over 450 nominations of various parcels throughout the State. Currently, there are four natural areas and two wildlife management areas designated within the coastal area as a result of Preservation 2000. Some of the 33,000 acres under negotiation lies within the coastal area. The areas acquired provide such uses as protection for bald eagles and other endangered species, hunting, fishing, boating, nature observation, primitive camping, scientific study and protection of water quality for shellfish. A concomitant part of the Preservation 2000 program is the Georgia Greenways Council, a coalition of trail organizations and local, State and Federal agencies involved with trail development. The coalition promotes the protection of linear corridors and coordinates trail development throughout the State. A proposed Coastal Water Trail, the aquatic equivalent of the Appalachian Trail, would run along Georgia's coast from the Savannah River to the St. Mary's River. This trail would provide routing for sea kayaks and other small craft, and include access trails, boat launching sites and camping areas.

Does not apply.

8.8 RIVER CARE 2000

River Care 2000 is a public-private partnership program designed by Governor Miller to acquire natural areas and historic property along Georgia's riverbanks. The initiative is modeled after

Preservation 2000. River Care 2000 is intended to provide recreation and park land, and to allow better flood management.

Does not apply.

9.0 LOCAL LAND USE PLANS

The work would occur in authorized channels and deposition areas. The proposed work is fully consistent with these plans.

10.0 CONCLUSION

In accordance with the CZMA, 16 U.S.C. SS 1456(c), as amended, Savannah District has determined that the proposed modifications to the Brunswick Harbor Deepening Wetland Mitigation Plan would be carried out in a manner which is consistent with the enforceable policies of the Georgia Coastal Management Plan. This determination applies to the preferred alternative and the effects of the preferred alternative on the land or water uses or natural resources of the coastal zone, as directed by 15 C.F.R. SS 930.39.

APPENDIX H

Brunswick Harbor Deepening Modification to Enlarge Existing Turning Basin and Reduce Wetland Impacts

WETLAND SOP COMPLIANCE

A. Background

The Savannah District Civil Works Program had no input into development of the March 2004 "Standard Operation Procedure for Calculating Compensatory Mitigation Requirements for Adverse Impacts to Wetlands, Open Waters and/or Streams"or previous versions. Furthermore, the SOP states that it is "applicable to regulatory actions (underline added) requiring compensatory mitigation for adverse impacts to 10 acres or less of wetland or other open waters, and or 5000 linear feet or less of intermittent and/or perennial stream". There has been no commitment from or intention by the District to apply those procedures universally to projects in the Civil Works Program. However, in the interest of expediting agency approval of the Brunswick Harbor Deepening mitigation plan, this SOP has been used in determining the size of the mitigation acreage in the proposed mitigation plan.

B. Adverse Impact Factors and Required Mitigation Credits

Dominant Effect. Construction of the turning basin (enlargement of the existing turning basin) will require excavation of 5.9 acres of wetlands. This requires a factor of 1.8 (dredge). Approximately 0.4 acres of ditches through high marsh will be required to ensure adequate hydrology for the restored wetlands. This requires a factor of 1.8 (dredge). Up to 1 acre of wetlands may be impacted by fill from pipe ramp and weir construction. This requires a factor of 2.0 (fill).

Duration of Effect. These effects are expected to be essentially permanent and require a factor of 2.0 (greater than 7 years).

Existing Condition. Wetlands to be impacted consist primarily of short-form *Spartina alterniflora*, with a small amount of tall form near the river. On the upland side, there is typical high marsh vegetation from *Iva* to *Salicornia*, and small patches of unvegetated areas. A large amount of accumulated debris is also present in the vegetation. This vegetation exists as a wetland fringing the edge of a highly maintained navigation channel within a commercial harbor.

The salt marsh that would be impacted forms a narrow band along the bank of the East River in Brunswick. A port facility and industrial area exists on the opposite bank. Since this marsh is relatively small, exists along an industrialized river, and has had some fill placed in parts of it in the past, it would not be considered fully functional (Class 1, with a factor of 2.0). For the most part, it could be expected to assume a fully functional

condition, were its surroundings to revert to a pristine condition. The most appropriate class appears to be Class 2 (factor of 1.5).

Definitions from SOP.

Class 1 means fully functional. For example: Mixed species hardwood forest with 40-year old or older dominant canopy trees, and no evidence of hydrologic alteration (2.0 impact factor).

Class 2 means adverse impacts to aquatic function are minor and would fully recover without assistance. For example: Mixed species hardwood forest with 20 to 40-year old dominant canopy trees, and no evidence of hydrologic alteration (1.5 impact factor).

Class 3 means adverse impacts to aquatic functions are minor and would not fully recover without some minor enhancement activity. For example: Mixed species 10 to 20-year old hardwoods with evidence of minor hydrologic alteration (i.e., few shallow ditches)(1.0 impact factor).

Lost Kind. Kind A includes intertidal wetlands, the type of wetlands that would be impacted by this project (2.0 impact factor).

Preventability. The new proposal to enlarge the existing turning basin in East River rather than construct a new turning basin upstream of the existing one was specifically designed to minimize potential environmental impacts. Efforts are now underway (including conducting cost estimates and contract negotiations) to determine whether this alternative is practicable. It is clear that because of the effort that has gone into finding an alternative and mitigation plan that fits the project requirements, there will be no known alternatives which satisfy the purpose, are practicable, and are less damaging (whichever construction alternative is chosen). This corresponds to the definition of low preventability (0.5 impact factor) “low means there are no known alternatives which satisfy the purpose, are practicable, and are less damaging”.

Rarity Ranking.

We believe that saltmarshes in Georgia meet the definition for uncommon (see below), if the whole state is considered (since they would be encountered commonly only on the coast, and have exceptional quality). Therefore, we believe a strict interpretation of the SOP indicates that the marshes to be impacted should be assigned a factor of 0.5. However, we understand from prior negotiations that the agencies have taken the position that saltmarsh in Georgia is “rare”. We will not contest this ranking at the present time and have assigned a value of 2.0 for rarity ranking in the “required mitigation credits worksheet”.

Definitions from SOP.

Rare. Rare means that the designated category is seldom occurring and is marked by some special quality. (2.0 impact factor)

Uncommon. Uncommon means that the designated category is not ordinarily encountered or is of exceptional quality (underline added). (0.5 impact factor)

Sum of Factors.

The sum of r factors for the turning basin impacts is 9.8 (5.9 acre impact). This is also the sum for required ditches for the mitigation sites (0.4 acre impact). The sum for required ramps and weirs is 10.0 (1.0 acre impact).

Required Credits.

Total required credits is 71.7.

B. Restoration/Enhancement Mitigation Factors and Total Credits to be Produced

Net Improvement Vegetation.

Factors range from Minimal Enhancement (0.1) to Complete Restoration (1.4).

Baseline Assessment. The mitigation sites consist mostly of mounds of dredged material that were placed in salt marsh many years ago. This dredged material placement removed all wetland characteristics from the sites. There is no evidence of tidal influence, standing water, or other hyrological indicators. Current vegetation on the mitigation sites consists primarily of small trees and shrubs and little understory or herbaceous layer. Species include primarily juniper, wax myrtle, pine, yaupon, salt cedar, sabal palmetto, yucca, hackberry, and *Opuntia* sp. The boundaries of these upland areas grade into surrounding wetlands through a series of vegetation changes that grade from high marsh vegetation to *Spartina alterniflora* marsh as the elevations decrease. The uplands provide little wetland functional value. A few herons were found roosting at one of the sites, but no evidence of nesting was found. One mound that was considered as a potential restoration site and rejected was Area 3. Although this mound had areas of high ground, there were spots throughout the site where there either standing water or other evidence of wetland hydrology.

Proposed Condition. The mitigation plan calls for the upland areas to be cleared and the sites excavated to the elevation of adjacent *Spartina alterniflora* marsh. The high marsh areas surrounding these sites would for the most part be left undisturbed, except where ditching is deemed necessary to enhance the hydrology of the areas. It is expected that these cleared areas would be readily naturally revegetated by *Spartina alterniflora*. This vegetation change from an entirely upland system to that of a *Spartina alterniflora* salt marsh would provide the vegetation functional lift. No upland buffers would be present, except for the “shelf” acreage at the edge of the turning basin. In that case, the shelf

would be bounded by the toe of the Andrews Island dike. Once the new dike slope has been established, dike surface will be stabilized with vegetation. No development on the slope would occur. The dike slope vegetation would function as an upland buffer.

Monitoring would occur as originally proposed in the wetland mitigation plan in the Brunswick Harbor Deepening EIS and necessary steps would be taken to ensure that this valuable vegetations returns to the mitigation sites and the Project fulfills its mitigation commitment (the monitoring plan is detailed at page 17 of Enclosure B, Wetland Mitigation Plan, of the Final EIS). This should result in complete restoration of saltmarsh vegetation (1.4 factor).

Net Improvement Hydrology.

Factors range from Minimal Enhancement (0.1) to Complete Restoration (1.4).

The sites currently have no indication of wetland hydrology or tidal influence. The sites would be excavated to the elevation of adjacent *Spartina alterniflora* marsh. In addition, ditches would be cut to the sites through adjacent high marsh where necessary to ensure daily tidal flushing of the sites. This should result in complete restoration of tidal hydrology.

Credit Schedule.

Mitigation would be constructed concurrent with the impacts. This corresponds with Schedule 3 (0.2 credit factor).

Kind.

The proposed plan would replace the impacted aquatic site (tidal wetland community that is primarily *Spartina alterniflora* marsh) with one of the same hydrologic regime and plant community type (tidal *Spartina alterniflora* marsh). This corresponds to Category 1, or In-kind (0.6 credit factor).

Maintenance.

No maintenance is anticipated. The mitigation area is expected to continue developing into the preferred habitat (*Spartina alterniflora* marsh) without any human intervention after the monitoring period is complete. This corresponds to “none” (0.3 credit factor).

Monitoring and Contingencies Plan.

The proposed Monitoring and Contingencies Plan consists of the follow factors. These factors coincide with the “Moderate Level Monitoring” (0.2 credit factor).
At least 5 years of monitoring.
Vegetation survival monitoring (including a commitment to replant if success is not achieved)

Basic hydrological monitoring
Collection of suitable baseline data.

Control.

A restrictive covenant (RC) and Government/Public Protection will be placed on the restored dredge mound sites (14.4 acres) (0.4 impact factor). The property owner (Georgia Department of Transportation) has indicated they would agreed to do this.

For the shelf of marsh that would border the new turning basin (2.3 acres) we have determined that it would not be in the federal interest to place a restrictive covenant on this area. This could impair the federal government's ability to do its job, if for instance, a need is found in the future to expand the turning basin again. Therefore, a factor zero (0.0 impact factor) is applied to this acreage (2.3 acres).

Recognizing that the marsh fringe (2.3 acres) would be a wetland mitigation site, we agree that should impacts to this mitigation acreage become necessary in the future, mitigation will be required at twice its value (4.6 acres). Furthermore, the 2.3 acres of wetland mitigation will be clearly marked on project drawings to ensure this commitment is recognized in the future.

Sum of m factors.

The sum of factors for the "mound" mitigation acreage is 4.5 (14.4 acre mitigation area). The sum of factors for the "shelf" mitigation acreage is 4.1 (2.3 acre shelf area).

Total Restoration/Enhancement Credits.

Total restoration/enhancement credits are 74.2, compared to 71.7 required credits.

ADVERSE IMPACT FACTORS

Factor	Options						
Dominant Effect	Fill 2.0	Dredge 1.8	Impound 1.6	Drain 1.4	Flood 1.2	Clear 1.0	Shade 0.5
Duration of Effects	7+ years 2.0	5-7 years 1.5	3-5 years 1.0	1-3 years 0.5	< 1 year 0.1		
Existing Condition	Class 1 2.0	Class 2 1.5	Class 3 1.0	Class 4 0.5	Class 5 0.1		
Lost Kind	Kind A 2.0	Kind B 1.5	Kind C 1.0	Kind D 0.5	Kind E 0.1		
Preventability	High 2.0	Moderate 1.0	Low 0.5	None 0			
Rarity Ranking	Rare 2.0	Uncommon 0.5	Common 0.1				

† These factors are determined on a case-by-case basis.

REQUIRED MITIGATION CREDITS WORKSHEET

Factor	Area 1 Turning Basin	Area 2 Ditches in Mitgation Area	Area 3 Ramps/ Weirs	Area 4	Area 5	Area 6
Dominant Effect	1.8	1.8	2			
Duration of Effect	2	2	2			
Existing Condition	1.5	1.5	1.5			
Lost Kind	2	2	2			
Preventability	0.5	0.5	0.5			
Rarity Ranking	2	2	2			
Sum of r Factors	R_1 =9.8	9.8	R_3 =10	R_4 =	R_5 =	R_6 =
Impacted Area	AA_1 =5.9	AA_2 =0.4	AA_3 =1	AA_4 =	AA_5 =	AA_6 =
R × AA =	57.82	3.92	10			

Total Required Credits = $\sum$ (R × AA) = **71.7**

RESTORATION/ENHANCEMENT MITIGATION FACTORS

Factor	Options				
Net Improvement Vegetation	Minimal Enhancement 0.1 ---------- to ---------- Complete Restoration 1.4				
Net Improvement Hydrology	Minimal Enhancement 0.1 ---------- to ---------- Complete Restoration 1.4				
Credit Schedule	Schedule 5 0	Schedule 4 0.1	Schedule 3 0.2	Schedule 2 0.3	Schedule 1 0.4
Kind	Category 2 0.2	Category 1 0.6			
Maintenance	High 0	Moderate 0.1	Low 0.2	None 0.3	
Monitoring and Contingencies Plan	N/A 0	Minimum 0.1	Moderate 0.2	Substantial 0.3	Excellent 0.4
Control	RC 0.1	RC + CE or GPP 0.3	RC + CE + GPP 0.5		

PROPOSED RESTORATION/ENHANCEMENT MITIGATION WORKSHEET

Factor	Area 1 Restored Mounds	Area 2 60-ft Shelf	Area 3	Area 4	Area 5
Net Improvement Vegetation	**1.4**	**1.4**			
Net Improvement Hydrology	**1.4**	**1.4**			
Credit Schedule	0.2	0.2			
Kind	0.6	0.6			
Maintenance	0.3	0.3			
Monitoring and Contingencies Plan	0.2	0.2			
Control	0.4	0			
Sum of m Factors	M_1 =4.5	M_2 =4.1	M_3 =	M_4 =	M_5 =
Mitigation Area	A_1 =14.4	A_2 =2.3	A_3 =	A_4 =	A_5 =
M × A =	64.8	9.43			

Total Restoration/Enhancement Credits = $\sum$ (M × A) = **74.2**

BUFFER MITIGATION FACTORS

Mitigation Summary Worksheet For Brunswick Deepening Modification

I. Required Mitigation

A.	**Total Required Mitigation Credits =**	**71.7**

II.	**Mitigation Credit Summary**	**Credits**	**Acres**
B.	Mitigation Bank		
C.	Restoration and/or Enhancement	74.2	16.7
D.	Creation		
E.	Functional Replacement Mitigation = B + C + D	74.2	16.7
F.	Upland Buffer		
G.	Preservation		
H.	**Total Proposed Non-Bank Mitigation = E + F + G**	**74.2**	**16.7**